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EDITORIAL



WELCOME TO OUR ROYAL GUESTS



In common with all other citizens of Australia, we, the members of the Wireless Institute of Australia, humbly extend to our Royal Guests a hearty and sincere welcome to this "Our Land."

As this is the first occasion on which a reigning Queen has visited Australia, we are deeply appreciative of the honour bestowed upon us and look forward to the time when Aus-

tralia will become the second home of our Queen and her family.

We pledge ourselves to do everything in our power to make this visit a happy and memorable event.

Taking a lead from the Motto of the Boy Scouts, we will hold ourselves prepared at all times to serve loyally.

"GOD SAVE THE QUEEN."

THE CONTENTS

Skeleton Slots	2	Trade Review—Eddystone "700" Communications Receiver	11
Let's Listen	5	Fifty Megacycles and Above	13
The Complete Amateur—The V.F.O.	6	20th A.R.R.L. International DX Competition	13
Amateur Call Signs	7	DX Activity by VK3AHH	15
A Treatise on Practical Modern Recording Tape	9	Prediction Chart for Feb., 1954 ..	15
Antarctica	10	Federal, QSL, and Divisional Notes	16

SKELETON SLOTS

BY A. HAVYATT,* B.E., G3IFS/VK2AET

SLOT aeralis were developed during World War II for use at centimetric wavelengths in order to provide an efficient radiator for energy at those ultra high frequencies. They were originated in wave-guide technique for radar, and with subsequent development, have been used for v.h.f. broadcasting and other v.h.f. purposes.

About three years ago the B.B.C. erected at Wrotham, England, a radiator for 90 Mc. f.m. transmission and this radiator is technically described as an assembly of co-phased slots on the surface of a vertical cylinder. This, in effect, consists of 32 slot radiators arranged in eight tiers with four in each tier spaced equally around the circumference of the vertical cylinder. In addition, it has been suggested that this form of radiator would be suitable for use in aircraft by cutting slots in the aircraft skin and plugging with dielectric, thus avoiding the use of projecting v.h.f. aeralis. A further suggested application is their use as marker and landing beacon radiators on aerodromes when they could radiate from horizontal slots let into the surface of the ground, even in the surface of a runway if necessary.

At centimetric wavelengths, energy is transmitted more efficiently as bounded electromagnetic waves in a wave-guide than as currents in a conductor. When it is required to radiate the energy which is being carried by the wave-guide, it is not necessary to put the energy back into current form and then radiate from an aerial, but instead, the electromagnetic wave can be radiated directly.

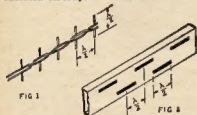


Fig. 1.—Demonstrating difficulty of constructing an array of dipoles at centimetric wavelengths. Fig. 2.—Radiating sheet equivalent to the array of dipoles in Fig. 1.

It is easy to understand that an array of dipoles (Fig. 1) would be difficult to construct in order to provide correct phasing and impedance matching at these frequencies so that some other form of radiator becomes desirable.

This problem is overcome by punching a row of holes in the side of a wave-guide so that each hole radiates some of the energy passing down the guide. It is, of course, necessary to make the holes of suitable length to act as radiators, and also to space them correctly so that they are fed in uniform phase (Fig. 2).

HOW A SLOT RADIATES

You will no doubt be asking now how slots manage to act as radiators,

and it is a little difficult to see what they have in common with other types of aerial. First of all, a slot in an infinite sheet is closely equivalent to a flat strip dipole in free space if it is assumed that the shapes of conductor and dielectric be interchanged. Reference to Fig. 3 will make this analogy clear where it will be noted that the input impedance is approximately 70 ohms in the case of the dipole and 500 ohms for the slot.

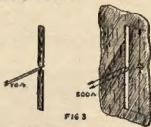


Fig. 3.—Dipole and corresponding slot in an infinite sheet.

It is well known that the electric component of the field from a dipole is in the same direction as the dipole, i.e. horizontal polarisation is obtained from a horizontal dipole. And as the electric field is at right angles to the magnetic field, it follows that the magnetic field from a horizontal dipole will be vertical. Other well known facts that emerge in connection with the dipole are that it has maximum current at the ends and maximum voltage at the ends.

However, in the case of the slot, it can be seen that, viewed from the feed point, the slot edges form short-circuited quarter wave transmission lines. This arrangement has a high input impedance, so that heavy currents will flow in the short-circuited ends and a high voltage will appear across the feed point, its value tapering off towards the short-circuited ends. This voltage across the slot tips forms an electromagnetic field in the slot which is free to radiate outwards from both sides of the sheet. The electric field is polarised in a plane at right angles to the slot length, i.e. horizontally, whilst the electro-magnetic field is vertical, assuming a vertical slot. The important point that emerges here is that the horizontal dipole and the vertical slot both produce horizontally polarised radiation.

The vertical electro-magnetic radiation, and hence horizontal electric field, could also be explained by the fact that current flows in the horizontal ends of the slot causing radiation of energy, whilst currents flowing in the vertical sides flow in opposite directions and cancel each other out (Fig. 4).

Another point of great similarity between the slot and the dipole is that each can be folded to alter its input impedance. A folded dipole has its impedance increased fourfold, whilst the folded slot has its impedance re-

duced to a quarter of its original value, with a resultant construction as shown in Fig. 5.

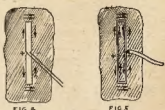


Fig. 4.—Distribution of current in sheet surrounding slot radiator. Fig. 5.—Folded slot.

FIELD STRENGTH PATTERNS

At this stage it would be as well to examine the field strength patterns of the slot aerial to enable a comparison to be made against the ordinary dipole. It will be seen (Fig. 6) that the horizontal pattern has a figure-of-eight shape similar to that which is obtained from a horizontal dipole, whereas the vertical pattern has higher energy radiation parallel to the ground than at right angles to it. This latter pattern reveals the difference between the two aeralis as the corresponding dipole pattern would show equal radiation in all directions.

It is immediately apparent that the vertical radiation pattern is somewhat similar to that which would be obtained from two stacked dipoles, or a "one-over-one," and is therefore a very desirable feature for v.h.f. propagation. In addition, a conventional type of dipole reflector can now be added which gives this simple aerial a forward gain in excess of 4 db and having a broad front lobe.

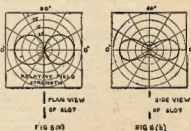


Fig. 6 (a).—Horizontal radiation pattern. Fig. 6 (b).—Vertical radiation pattern.

PRACTICAL DESIGN

So far the discussion has centred around slots cut in an infinite sheet which is impracticable and still continues to be so for sheets of finite size owing to high wind resistance and difficulty in arranging for rotation, not to mention being most unsightly. One way out of the difficulty is to use a construction of wire netting, this in fact being quite permissible and resulting in a satisfactory aerial for certain applications. But in experiments to determine how much of the sheet could be cut away to reduce unnecessary metal, it

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was found that satisfactory operation could still be achieved with quite a narrow band of metal provided the width of the slot was increased as the surround was decreased. This led to the construction of a radiator in small diameter tube and ultimately became known as the skeleton slot aerial. For successful operation it was found that the tube diameter should not be less than $\frac{1}{8}$ ".

Owing to the fact that a point of minimum voltage appears at each end it is not necessary to employ insulators, and the aerial does in fact lend itself to all metal construction if this is desired. A slot aerial employing the Yagi method of construction is impracticable so that stacked construction must be employed to obtain a smaller vertical angle of radiation, and dimensions for a two-stack skeleton slot suitable for use on two metres are given in Fig. 7.

Flat or circular twin feeder of 300 ohm impedance may be used to provide effective feeding and matching to the elements. When 300 ohm feeder is used as phasing lines, it has a velocity factor of 0.82, so that if half wave lines are used, thus giving the same impedance at the feed end as the element impedance, they should be $33\frac{1}{2}$ " long. Then, two such sections in parallel for the array illustrated will present an impedance of approximately 250 ohms, to which 300 ohm transmission line may be attached without serious mismatch. If on the other hand it is desired to use 75 ohm co-axial transmission line, the phasing sections may be made three-quarter wavelength long, i.e. $50\frac{1}{2}$ ", so

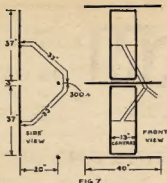


Fig. 7.—Dimensions of Two-Stack Two-Metre Skeleton Slot showing feeder connections.

that the feed point impedance becomes 90 ohms, to which 75 ohm co-ax transmission line may be attached again with a permissible degree of mismatch. A better match may be obtained by using a Q-bar section which can be calculated to suit individual requirements.

There is no need to limit this array to two elements, as any number may be used provided arrangements are made to feed and match the sections correctly, and standard methods of doing this can be employed.

CONSTRUCTION

A satisfactory material for construction of the skeleton slot is $\frac{1}{4}$ " screwed conduit, but care should be exercised in bending the corners, for which a bend-

ing machine of the type used by electricians is an advantage. Reflectors can be of the same material to provide uniformity of appearance.

It will be necessary to fit projecting pieces from the middle of each side of the slot towards the centre so that the phasing lines can be attached. They may be of a lighter material and if copper is suggested, as long as these projections are not expected to take too much pull from the phasing lines. Alternatively, an extra length may be left on the half wave phasing sections so that they can be split down the middle and parted to make a connection to each side.

CONCLUSION

The skeleton slot aerial has not been developed to any great extent yet, although the slot aerial, from which it originated, is well established. Additional research and experimentation needs to be carried out so that keen v.h.f. workers should find plenty to interest them with this new aerial.

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12v. input. Frequency ranges 200 to 410 Kc., 550 to 1200 Kc., and 2.9 to 6 Mc. Complete with 12 valves and generator. Valve line-up: 4—6K7, 2—6N7, 1—6L7, 2—6J5, 2—6B8, 1—6F8.

£24/17/6

U.H.F. MIDGET HOMING RECEIVERS

Frequency range: 234-258 Mc. Can be operated from either 12 volt or 24 volt internal change-over switch. Valve line-up: 1—955, 3—954. Manually tuned dials calibrated in frequency.

£4/19/6

MAGNAVOX

Two valve Interphone Amplifiers. Valves: 1—12A6, 1—12SL7. Complete with filter choke and output transformer.

£2/10/-

TRANSMITTER-RECEIVER Type RT-34/AP8-13

Frequency Modulated, approx. 450 Mc. Valve line-up: 9—6AG5, 5—6J6, 2—2D21, 1—VR105

Also contains Dynamometer, input 27v. 1.5 amp., output 285v. 60 Ma. Price £17/10/-

GENEMOTORS

Type 72—Input: 27v. 3.6a., Output: 250v. 70 Ma., and 12.6v. 2.6 a., £1/19/6.
Type DA-3A—Input: 28v. 10.5a., Output: 300v. 260 Ma., 150v. 10 Ma., 14.5v. 5a., £1/9/6.

Type 31—Input: 18v. 12a., Output: 7.2v. 13a., 225v. 110 Ma., £1/19/6.

TRANSMITTING TUNING UNITS by G.E.

Type TU10B
10000 to 12500 Kc., £2/10/-
Type TU7B
4500 to 6200 Kc., £2/10/-
Type TU6B
3000 to 4500 Kc., £3/10/-
Type TU9B
7700 to 10000 Kc., £2/10/-

BENDIX RADIO AZIMUTH CIRCLE LOOP AERIAL CONTROLS, Type MN22A

Price 35/-
Post. & Pack.: 4/9, Interstate 6/-.

VALVES

BRAND NEW IN ORIGINAL CARTONS

1H6	.....	7/6	813	.....	60/-
1K7	.....	10/6	VR150/30	.....	22/8
6AC7	.....	15/-	954	.....	7/11
6B8	.....	15/-	12A6	.....	12/6
6F8	.....	12/6	2050	.....	22/6
2051	.....	22/6	2050, 22/6. This valve is suitable for use with Photo Cell Relay Unit, as per June, 1953, issue of "Radio and Hobbies."		
6K6G	.....	12/6			
6L7	.....	12/6			
807	.....	25/-			
830B	.....	60/-			

ASD RECEIVERS TYPE CPM-46A-BG

V.H.F. RECEIVERS, approx. 300 Mcs.

Containing the following Valves:

9—6AC7	2—6V8G	1—6SJ7
1—6H6	1—6SN7G	2—6X5GT
2—2050	2—VR105/30	2—3U4G
1—6A4G	1—VR150/30	2—2A3

Price £17/10/-

LET'S LISTEN

BY C. A. CULLINAN,* VK7XW

Here is a simple c.w.-phone monitor which is r.f. driven. It operates over a wide frequency range without tuning and can also be used as an audio oscillator for code practice or tone work. The note is rich in harmonics which makes for easy listening. It's a small gadget of immense value in any station.

We all know that it is a very desirable practice to be able to monitor our own signals and for phone work a simple diode operating a pair of headphones appears to be quite a favourite. However, when it comes to the matter of monitoring one's c.w. signals, the problem is much more difficult.

Obviously the finest way is to devise some means of listening to the signal "off the air" with a high-quality device which will give a true reproduction. A good frequency meter will do this and if sufficiently good, will show chirp and other faults very quickly. However, this ideal method has the great disadvantage that the signal must be accurately tuned in on the monitoring device—this is time consuming and in these days of universal use of v.f.o.'s, is rapidly falling out of favour as are other methods which require tuning.

At the other end of the scale is the simple audio oscillator which is keyed simultaneously with the transmitter. This method is really simple, but does not give any clue as to what the actual signal is doing.

Whilst doing some work on the problem of telemetering for a b.c. station remote control system, it was realised that in a simpler form here was the answer to the problem of a c.w. monitor that lay in between the two extremes quoted. Then it was quickly seen that with a simple switching system a monitor could be built for either c.w. or phone operation as well as being useful as a code practice oscillator and a.f. source.

Basically the idea is to pass a sample of the carrier through a loaded rectifier and use the resultant positive voltage to drive an audio oscillator.

This then is the answer to the whole problem and in practice it works to perfection, and in the completed instrument gives loudspeaker (or headphone if desired) monitoring of both c.w. and phone transmissions "off the air."

Let's look at the circuit. A 6SN7 dual triode valve is used as a combined diode audio oscillator. A 6V6 is employed as an audio amplifier, whilst a 6X5 provides the necessary d.c.

The r.f. circuit is untuned to get over the objections to tuned circuits. The grid and plate of one half of the 6SN7 are strapped together for diode operation, the cathode having a 0.5 megohm load resistor shunted by a condenser of 0.00025 uF.

The output of the diode is fed to a switch for c.w. or phone operation. The audio oscillator is a Hartley circuit using a push-pull output transformer. The audio note is governed by

the values of C4, C5, C6, R2 and the applied voltage.

Quite a lot of experimenting can be done with these components to get a suitable note. However, it must be borne in mind that an oscillator of this kind is very rich in harmonics.

The output of the oscillator goes to a 6V6 audio amplifier by means of a second section of the c.w.-phone switch. In phone work the oscillator is disconnected from the circuit and the demodulated output of the diode is passed to the audio amplifier.

In order to key the oscillator for use as a code practice unit, a jack of the type shown is connected to key in the cathode of the oscillator. This jack also removes the diode from the circuit and substitutes B plus voltage from a voltage divider.

With a 5" loudspeaker, the unit will provide ample volume for any average room for c.w. practice.

In our case, the whole unit was built into a small metal box and coupling is made into the transmitter with a small coil at the end of a piece of co-ax cable. Care must be taken to ensure that the r.f. being fed into the circuit is from one's own transmitter. If it is used near a b.c. or other station, there may be a background of this station, but some shielding and a little care will take care of this except for those who operate in the immediate vicinity of such a station. For them, the input should be tuned.

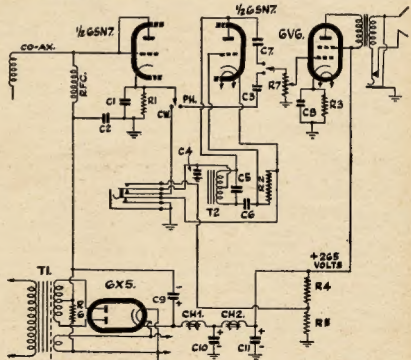
In the absence of a signal there will be a small residual current flowing in the diode load resistor and although the resulting voltage is very low it could cause the oscillator to operate very weakly. This would give the impression of a back wave. In this design it has been overcome by applying a small negative voltage to the diode via resistor R6. Be careful to note the connections to the electrolytic condenser C9.

Alternatively, a crystal diode, correctly connected may be used in place of the half 6SN7, in which case any medium mu triode may be used for the oscillator.

In use the unit should be used with just enough coupling to produce a good note with an unmodulated carrier. In phone work the volume will be less than that for c.w. for the same input and volume settings.

The condenser C4 (0.1 uF.) should not be changed as with this value the unit should key satisfactorily up to at least 40 w.p.m. There may be a slight chirp due to the fact that the oscillator is being keyed (either directly or indirectly) and for this reason the transmitter keying should be checked from time to time by other means.

If you should go on phone after a c.w. session and the output of the monitor is garbled, you will probably find that the switch is in the c.w. position and the oscillator is operating on modulation.



- C1—0.0025 uF. mica.
- C2, C3, C4—0.1 uF. 200v. tubular.
- C5—0.003 uF. mica.
- C6—0.01 uF. mica or tubular.
- C7—0.03 uF. 200v. tubular.
- C8—25 uF. 50v. electrolytic.
- C9, C10, C11—8 uF. 250v. electrolytic.
- R1—0.5 megohm 1/4w.
- R2—0.1 megohm 1/4w.
- R3—250 ohm 3w. w.w.
- R4—0.2 megohm 1w.
- R5—20,000 ohm 1w.
- R6—25 ohm 3w. w.w.
- R7—0.5 megohm volume control.
- R8—2.5 mH. R.F. choke.
- T1—Power Transformer: primary to suit mains voltage, secondary 1:1 300-0-300 at 40 Ma., L.T. 6.3v. at 2 amp.
- T2—Push-pull output transformer, 10,000 ohms c.t. (secondary not used).
- CH1, CH2—Low resistance filter chokes.
- Sanidine—Two jacks as shown, one wafer switch as shown, one loudspeaker to match 6V6 valve.

* 64 Lawrence Vale Road, Launceston, Tasmania.

THE COMPLETE AMATEUR

BY TOM ATHEY,* A.I.R.E.

FIRST as to the requirements of a complete station. The rules and Regulations as laid down in the P.M.G. Handbook for the Guidance of Operators of Amateur Stations must be adhered to strictly. By doing this, many unnecessary "blues" will be avoided and no tempers frayed. So the main requirements left are a good stable transmitter, a means of monitoring the output, a frequency checking system, the elimination of unnecessary harmonic radiation, and last but not least, courtesy to other Hams. The latter is self explanatory and it is felt sure one that can be dealt without any further remarks.

This leaves the more technical aspect and it is this that it is proposed to discuss. Each portion of a transmitter will be described, and circuits have been drawn, giving a basis upon which to work. Although certain valve types are quoted, it is not absolutely essential that these be adhered to. In many cases they may be unobtainable, or the pocket may not be able to stand the outlay. However, the discussed type will form a definite basis for discussion.

Many times during the course of lectures at the Queensland Division of the W.I.A.'s A.O.C.P. Classes, the question arose just what gear was required that a chap may become an Amateur, providing that he has his licence.

Consequently, as a past instructor, the author has decided to submit to the fraternity a series of articles dealing with the construction of a complete Amateur Station, capable of satisfying the most fastidious of intending Amateurs. The ethics of the sport, and it is a sport, he leaves to the instructors, as well as the general theory, knowing full well that this side will be adequately covered.

Further, the author has always been an advocate of relay rack construction. Consequently, the whole rig is designed around a relay rack. This will give the rig a smart and professional appearance and give the constructor a definite pride

It is as well to note here and now that the aerial tuning unit is not included in the rack. This is to assist in harmonic reduction. Keep your aerial tuning unit as far away from the rack as practicable. And so to our first description—

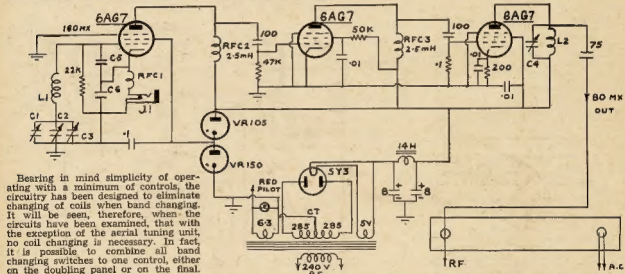
SECTION ONE THE V.F.O.

Rack Panel measurements—19" x 4 units
Chassis not more than 17" x 8" x 2" deep

The circuit consists of the familiar electron coupled Clapp oscillator, followed by an isolator-buffer and then by a buffer-doubler to 80 metres.

The 6AG7 is undoubtedly the best oscillator valve available, as harmonics can be taken from it down to the fifth with ease. The mu is high—in the vicinity of 11,000—and if possible this type should be adhered to. However, if it is unobtainable use a 6M5 or 6BW6 in that order.

The fundamental frequency decided upon was 160 metres or 1750 Kc. As the band width is 3.5 to 3.8 Mc. on the 80



Bearing in mind simplicity of operating with a minimum of controls, the circuitry has been designed to eliminate changing of coils when band changing. It will be seen, therefore, when the circuits have been examined, that with the exception of the aerial tuning unit, no coil changing is necessary. In fact, it is possible to combine all band changing switches to one control, either on the doubling panel or on the final.

The whole unit is more elaborate than seems necessary. But to make a really good job of a transmitter, it is necessary to incorporate everything that will provide flexibility of movement, tidiness and a job giving efficient and stable output. Hence the requirements for a complete transmitter should include:—

1. A variable frequency oscillator movement;
2. A crystal oscillator;
3. Doubblers and/or triplers to all bands through 80 to 10 metres;
4. Provision for manual keying;
5. Provision for modulation;
6. Ease of antenna coupling; and
7. A minimum of switching.

and joy in his work. Too many rigs in the past have been "haywired" and although astounding results have been procured, even the owners admit that it could be cleaned up if they had the time. So chaps, when you begin your rig, begin it the right way—clean and neat.

It is proposed to deal with each portion of the transmitter separately and each circuit will, naturally, be included in the text. On each circuit all terminations are brought out to a panel to represent the rear of the chassis under discussion. Later on a complete diagram of cabling, interlacing all panel and chassis will be presented so that no error in cabling can be made.

metre band, this means the variation must be 1750 to 1900 Kc. Allowing for a small overlap at each end, the tuning assembly must cover 1700 to 1950 Kc.

The use of this low frequency is apparent. Just listen to any h.c. receiver working in the vicinity of 1500 Kc. and note how much drift from frequency is there—if any—and no great care taken! So use a low frequency for your fundamental. The values given will cover this range.

It is necessary to use high grade condensers in this unit. Double bearing shafted condensers preferably are best. In fact, it is recommended that the unit from the TU10 Tuning Unit be used.

Looking at the circuit, C1 is your main tuning condenser. C2 is a negative

* Ex-Instructor Qld. Division W.I.A. Classes;
41 Mouniford St., New Farm, Brisbane.

co-efficient condenser of 10 pF. capacity. Here you can use a Ducon N.P.O. type B ceramic. C3 is a 5-25 pF. ceramic trimmer and again is a Ducon TS2A type N800 5-50 pF. trimmer. C5 and C6 have a capacity of 0.0015 uF. and must be silver mica. Use Ducon type SS even if the right capacity must be built up. Of course if other brands are available use them by all means. It just so happens that these types were available. The above values are critical so try and adhere to the values wherever possible.

The r.f.c. has an inductance of 2.5 mH. All coupling condensers between the isolator and oscillator, buffer and isolator, and the coupler to the output should be mica. All by-pass condensers can be of paper and tubular construction.

When wiring, use rigid lines for all grid wiring of the oscillator. Wire of a gauge about 14 s.w.g. or b. and a. tinned is good and will form a rigid joint.

Chassis layout is left to each constructor's choice. However, it is just as well to keep the grid circuit shielded from the plate circuit. This can be done by enclosing the grid components in a shielded box above the chassis and connect the plate wiring beneath it. In fact, it may be wise even to keep the coil and condenser shielded away from the valve and then enclose the whole in another shield. This will materially assist in stopping drafts from affecting the temperature and causing variation to frequency.

As the isolator's job is not only to dissociate any voltage variations between the oscillator stage and the succeeding amplifiers, but is also to act as a builder of voltage, any high-gain pentode with a high slope will act here. It is an untuned stage and is capacity coupled to the buffer-doubler, which is a power amplifier.

The output of the buffer-doubler is tuned to broad-band characteristics by the small trimmer across the coil and in turn is fed to the multiplier chassis through a mica coupling condenser of 75 pF.

A small power pack is required, rating about 60-80 Ma. at 250 to 285 volts each side of centre tap. The h.t., after filtering, should be about 270v. Two VR tubes are used for voltage stabilisation—a VR105/30 followed by a VR150/30 in series. Thus the voltage to the oscillator plate is held at 255 volts, but the screen is held at 150 volts constant. It may be necessary to put a dropping resistor between the VR tubes and the h.t. supply, further isolating the oscillator from the normal h.t. feed.

After switching the unit on and allowing the unit to reach a steady operating temperature, no drift in frequency should be apparent if great care is taken in its construction. The v.f.o. has been designed to maintain on during the entire transmission and only the master switch controls it. When the master switch (to be shown later) is put on it cuts in the v.f.o. and all filaments of each portion of the transmitter.

A final word on construction. A good dial is a must. One giving a high vernier action is most desirable, or the individual can devise some way to obtain an open reading that, at a future date, can be logged for future reference to assist in calibration.

If care is taken, the unit can be tuned by the one control and give fairly even output across the whole range of its traverse.

Incidentally, there is sufficient output from the buffer-doubler to enable it to act as a small low-powered c.w. rig on 80 metres. Hence once you have got this unit working, you can get "on the air too sweet."

AMATEUR CALL SIGNS

FOR MONTH OF NOVEMBER, 1953

ADDITIONS

New South Wales
 VKE—S. W. Grimley, Charles St., Tweed Heads.
 2AQN—J. F. Cox, Station; 3 New England Drive, Kingsgrove; Postal: 33 Outley Rd. Piddington.

Victoria

3GH—P. D. Barnes, Woburn St., Heidelberg, N.22.
 3UF—J. L. Lake (Major), Postal Address: C/o Chief Signal Officer, Southern Command, Melbourne.

3WL—W. A. Wells, 22 Waterloo St., Camberwell.
 3AAW—A. K. Wright, A. W. H. R.A.A.F. School of Radio, Ballarat.
 3AHN—G. Hills-Thompson, 64 Fairmount Road, Hawthorn, V.3.

3AXX—N. E. Turnbull, 53 Armadale St., Armadale, S.E.3.

Queensland

4LE—L. H. Cox, Nugroove, Cooyar Line, via Toowoomba.
 4TC—A. Tremaine, 22 Quarry Street (Aeroglen), Cairns.

South Australia

50N—C. J. O'Brien, Rolden St., Hindmarsh, Midland Junction.
 6GJ—S. J. Smith, 430 Great Eastern Highway, Midland Junction.

7KM—K. G. McCracken, 153 Bathurst St., Hobart.

Territories

1DY—G. E. Delahoy, Reard Island.
 1EG—W. J. Storer, Australian Antarctic Continent.

ALTERATIONS

New South Wales
 3CS—Ocean View Parade, Cheltenham.
 3DW—38 Dargavel St., Yagoona.
 2JI—100 Milson Road, Cremorne.
 3QL—20 Abbotsford Road, Homebush.
 2QM—135 Dorley Street, Marna Vale.

2XQ—30 Crebert Street, Mayfield East.
 2XR—60 Flinders Street, Cronulla.
 2ABQ—211 Barcom Avenue, Darlinghurst.
 2ATC—22 Crane Road, Castle Hill, Sydney.
 2AYZ—Station 43, Koonah, A.C.T. Postal: Reid House, Canberra, A.C.T. Victoria

3GP—118 Marara Road, Camfield.
 3JT—Maori Chief Hotel, Cor. Moray and York Streets, South Melbourne.

3PW—3461 St. Albans, Victoria; Postal Address: Flat 21, Chatswood Road, 14 Chapel Street, St. Kilda.

3TC—8 St. Andrew Street, Brunswick, N.10.
 3ZF—Neil Street, Greenborough.

3ACU—Fairway Drive, Mooroonpa.
 3AGS—53 Aldred Road, E.13.

3AMU—Station: 2 Cannes Grove, Beaumaris; Postal: Flat 6, 11 Loch Street, St. Kilda.

3ANT—Mann Street, Melbourne.
 3AVN—43 Forster Street, Norlane.

Queensland
 4UJ—171 Roseliff Street, Highgate Hill, Brisbane.

4WI—Wireless Institute of Australia (Qland Div.), c/o J. F. Pickles, 61 Liverpool Road, Clayfield.

4WM—Kennedy Street, Brighton, Sandgate, South Australia

5DF—Wavell Street, Port Lincoln.
 5LL—3 7th Avenue, Trinity.

5OZ—14 Whistler Avenue, Unley Park.
 5PL—P.M.G. Repeater Station, Larrimah, N.T.

Western Australia
 6AS—Carpenteria.
 6EF—29 Lynton Street, Swanbourne.

6EW—43 Brighton Road, West Leederville, Tasmania

7MG—Swansea.
 7SK—Stowport.
 7FM—C/o. TNT Private Bag, Kelo.

DELETIONS

New South Wales VKS 2EG (now operating under VK1EQ), 2DK (now operating under VK1UJ).

Victoria VKS 3AAW (see new entry in additions), 3BDE (now operating under VK1DJ), 3AFB, 3AKQ, 3ABG (now operating under VK1KJ), 3AAW (now operating under VK1KJ).

FOR MONTH OF DECEMBER, 1953

ADDITIONS

New South Wales
 VKE—K. B. Founsett, No. 38(1) Squadron, R.A.A.F. Richmond.
 2ARD—R. F. Smith, Old Bethurst Road, Emu Plains.

Victoria

3AND—N. T. Buchanan, 330 Ascot Vale Road, Footscray.
 3ATE—R. W. Tate, Station: 3SH, Lake Boga Road, Swan Hill; Postal: 308 Campbell Street, Swan Hill.

3AVK—V. J. Kitney, c/o Landborough Street, Ballarat.

Queensland

4FU—Dr. J. K. Fullagar, Medical Superintendent's Residence, Rockhampton Hospital, Rockhampton.

1AC—A. C. Hawker, Macquarie Island.
 1PG—J. H. Gorr, Heard Island.

Territories

1AC—A. C. Hawker, Macquarie Island.
 1PG—J. H. Gorr, Heard Island.

ALTERATIONS

New South Wales
 3EK—11 Wilkinson Street, Dunsborough.
 2EL—17 Cliffield Avenue, Canterbury.
 2MZ—Flat 3, 27 Hawkesbury Road, Springwood.
 2AAF—Beaumont Road, Mt. Kuring-gah.

Victoria

3JE—11 Correa Avenue, Cheltenham, S.E.
 3ML—384 Glenferrie Road, Malvern, S.E.4.
 3UL—Eastgate Street, Dandenong, S.E.12.

3AAT—Roberts Road, Belmont, Geelong.
 3AHG—11 Gleeson Avenue, Burwood.
 3ALW—38 Oulies Street, Fairfield, N.8.

3AWB—20 Diamond Street, East Preston.

Queensland

4DR—115 Barclay Street, Dymally.
 4HM—33 Hunter Street, Woollooway, N.2.

4NP—187 Preston Road, Wynnham.

South Australia

5LD—69 Connors Avenue, Auckland Gardens.
 5LF—13 Olive Avenue, Westbourne Park.

Western Australia

6CK—Care D. C. Hall, Creek.
 6LA—Station 117, Morgan Street, Port Hedland; Postal: C/o. O.L.C. Dept. Civil Aviation, Port Hedland, Belmont.

6SF—128 Matheson Road, Belmont.

DELETIONS

New South Wales VKS 2NV, 2PG (now operating under VK1PG), 2ZZ, 2ABY, 2ACR.

Victoria VKS 3BT, 3IB (now operating under VK1AC), 3S2, 3ABP (now operating under VK2AQ), 3ACT, 3AIT, 3AD.

South Australia VKS 2TA (now operating under VK1ATE), 5VL (now operating under VK3AVE).

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It's the Super-Tropical capacitor made to withstand extreme temperature variations from -40°C. to +100°C. Check these big features: a solid foil and paper assembly, non-polluting, a rigid outer aluminum casing. Non-hygroscopic processing for high performance. Full hermetic rubber sealing to tubes and rivets. Special wire connection for maximum contact to element, brought through rivet and soldered.

Approved to Inter-Services Specifications KCS11/2 and KCU11/1

UCC CAPACITORS
FOR EVERY APPLICATION

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 413 Punchbowl Road, Enfield, N.S.W. 1511.
 U.C.C. 4-13

MODEL "1XA" CRYSTAL MICROPHONE INSERT



AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS



FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

- Patented crystal unit guarantees outstanding efficiency and performance.
- Protected against ingress of moisture with approved moisture sealed crystal element.
- Small — compact — lightweight — durable.
- Will not blast from close speaking.
- Precision engineering ensures realistic reproduction and high output with long life and dependable operation.

- The only unit available with a genuine sintered metal filter.
- Good high frequency response ensures excellent speech reproduction.
- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfil" filter.
- Australian made throughout.
- Only carefully selected cements used throughout, to suit Australian climatic conditions.

TECHNICAL DETAILS

Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved. Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1½" diameter (rear), 1" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
Output Level = -45 db (0 db = 1 volt/dyne/cm²)
Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

AVAILABLE FROM ALL LEADING TRADE HOUSES

ZEPHYR PRODUCTS PTY. LTD. 118 WATTLETREE RD.,
ARMADALE, VICTORIA

A TREATISE ON PRACTICAL MODERN RECORDING TAPE

PART ONE

BY G. W. STEANE

MUCH has been written of late as to the advantages of tape against wire in modern recorders, but now it seems quite clear that tape has won the day as is evident by the almost universal trend of tape sales as compared with wire, and in U.S.A. even the largest manufacturers of recorders, The Webster Company, have cleared their stocks of wire recorders and have launched a big sales campaign in marketing their new tape recorder.

Those of us who have used a wire recorder in the home have almost certainly been faced with the ordeal of joining the wire when it breaks—wire less than 4,000th of an inch thick or about the same size as a human hair—and maybe there are some of us who have had to untangle wire which has caught in the machine itself.

Travelling at a relatively high speed, usually more than 18" per second, which is essential for the reproduction of the higher frequencies, it is quite a mechanical problem to wind the wire evenly on to the spools provided and although the stainless steel wire now used is fairly strong, it is so easy to break same with "birds nests" or wire curlage all over the place.

Even on the best machine, there is no way of avoiding the background noise due to the rotation of the wire which invariably takes place.

One turn of record wire touching the next on the spools tends to leave an echo of surprising strength. This is called "printing" or "echo" and so high can the background be that our leading broadcasting stations no longer use these recorders but have installed professional tape recorders instead.

Present day tapes consist of a non-magnetic base which supplies the necessary mechanical strength, and a coating which supplies the magnetic properties. The base material may be either paper or plastic. Pyral paper base uses a kraft paper of special "construction," approximately 0.0016 inch in thickness. It is supercalendered to achieve a surface which is the utmost in smoothness. By using the proper paper construction, a smooth surface is achieved without using a filler. A filler (a fine powder to fill the pores of a coarse, poorly constructed paper) tends to rub off onto machine parts in unpleasant fashion. If enough binder is added to the paper to hold the filler, the paper is stiffened and curled and the tape will not seat smoothly on the heads. This impairs the high frequency response unless excessive tape tension is used.

Plastic base uses 0.0015 inch thick cellulose acetate. This is an improvement over the German practice, which used an oriented (stretched) vinyl material that would tend to wrinkle and shrivel up if overheated. This could easily happen in the back of a closed car in the summer sun. Plastic base is

It's nice to hear from Geoff Steane after so many years. He was one of the original members of the Victorian Division of the W.I.A. going back to the spark days when we had the spark transmitter rigged up in our Chapel Street, Prahran, days, and since then he has been in almost every phase of radio. Most of his time was on sound-systems and valves, but he originally started the W.I.A. A.O.C.P. construction classes as theoretical instructor with VK3BQ on the practical side.

He has recently been studying T.V. at the Sydney University and in the meantime has been importing Magnetic Tape from France, which accounts for his extraordinary interest in this line.

much smoother and somewhat more uniform in thickness than is paper base. Hence the resulting tape has less background noise, less modulation noise, and lower distortion.

Black oxide has a higher coercivity than red and in the French tape it can show up to 320 oersteds, whereas red tape ranges around 280 oersteds.

Black oxide is recommended for tape speeds of under $7\frac{1}{2}$ " per/sec. and will operate successfully on speech with tape speeds as low as $1\frac{1}{2}$ " per/sec.

Continental tape manufacturers differentiate on red and black in this way whereas the Americans seem to use red tape for all speeds.

Black tape is, of course, harder to erase than red and the improvement in high frequency response is not apparent apart from any highly specialised applications.

The binder is a tough, flexible combination of synthetic resins, used to hold the oxide to the base. Since tape may be stored tightly wound on reels for long periods, there must be no tendency for one layer of tape to stick to the next. At the same time, the binder must not be made so hard that the tape is made stiff—for then it would not seat well on the heads, and the high frequency response would be impaired.

The coefficient of friction between the binder and metal must be low, otherwise the tape will not move smoothly over the heads—leading to flutter and to squeal. This must be achieved in the material itself and not by applying a lubricant afterwards, for lubricant will rub off and foul the heads and sometimes the capstan. The anti-friction quality must be an integral part of the formula.

Just to make the problem of the formulator more difficult, all these properties must be achieved without injury to the toughness and strength of

the binder, and without causing it to curl. A weak binder will rub off onto the heads very rapidly. Tape which has curled will not lie flat on the heads without excessive tension, and the high frequency response will be impaired.

For uniform quality from one foot of tape to the next, the oxide and binder must be completely mixed—an operation known as dispersion. The French tape coating is dispersed for many hours in large mills, each weighing more than an automobile. Poor dispersion would increase modulation noise, as well as impair uniformity. The various ingredients are introduced into the mills according to a carefully developed sequence, then milled. A small amount is withdrawn from the mill and test-coated. If the test coat shows satisfactory dispersion, the mill contents are released for production use.

Modern tape has a ferric-oxide coating on one side of either plastic or paper base. This coating is made very thin, about 0.0006 inch, and is usually $\frac{1}{8}$ " in width, which gives a tensile strength of about 5 lbs. which is more than sufficient to stand up to even the poorest tape recorder. It is much easier to drive tape at an exact speed and there is no necessity to arrange for the magnetic head to move backwards and forwards as in a wire recorder. We might add that in the case of the latter, it is quite a problem to produce a wire head which will stand up to the cutting effect by the friction of the wire which saws its way through the softer pole-pieces of same, whereas in the case of the tape it is generally accepted that a pressure of one oz. across the gap of the head is sufficient to prevent flutter and the wear of the head and tape is negligible.

Several types of magnetic tape have appeared on the Australian market of late months, each with their own technical characteristics and for the connoisseur it is rather important that the frequency response, mechanical strength and output is examined as there is quite a variation in laboratory tests. Some agents for these tapes give information on all these factors and may be this article will enlighten many readers on same.

However, on account of dollar restrictions American tape is now off the market with the exception of a few samples, so that it may be of interest to readers to note that one of the leading manufacturers of tape recorders in U.S.A. openly advertise that their tape can withstand 57,000,000 replays before the output drops 5 per cent which, in itself, gives our readers some idea of the durability of tape generally. We presume of course that this colossal figure can only be expected when tape is lifted free from the magnetic head on fast rewind, which is usual with most reliable recorders.

(Continued next issue)

ANTARCTICA

AND this is the day! Long months of preparations, thousands of hours of special training have gone past; numerous preliminary tests, careful planning of instrumentation and research are over. Melbourne, the 4th of January, 1954—a farewell speech by the Minister for External Affairs, Mr. Casey, a last hand-shake, and the Kista Dan, the Danish exploration ship chartered by the Federal Government, sails for the seventh continent—Antarctica.

Aboard is a team of well chosen men whose aim is the establishment of a scientific research observatory in the Australian sector of that vast, wide-open land down south. Besides permanently planting the Australian flag there on icy ground, this means that scientific data of great importance will, in future, be available for the benefit of Australia, of mankind in general, in fact of future generations!

Let us recall that the whole continent covers an area of approximately 5,000,000 square miles.

Its chief feature is the great barrier of mountains and ice at its outer rim at points climbing to a height of 15,900 ft. An ice sheet about 2,000 ft. thick covers a plateau inside this barrier. There is a volcano, Mt. Erebus (13,202 ft.), on Ross Island. The vast Antarctic Ocean whose main seas are Weddell Sea, Biscoe Sea, and Ross Sea. Animal life is restricted to a few birds, mostly penguins. Other animals are seals and cetaceans. Lichen and mosses form the flora.

The climate of the colossal block of ice is rather unfriendly. Extreme values of air temperature are -18°F . and $+32^{\circ}\text{F}$. The yearly mean temperature is approximately $+12^{\circ}\text{F}$. Terrific snowstorms and gales are likely to blow any time during the year. Sunshine is a rarity.

Long is the chain of south-polar expeditions beginning with Capt. James Cook in 1774. To mention only a few others: Röss 1839/43, Scott 1901, von Drygalski 1901/03, Shackleton 1908/14, Byrd 1928, Sir Hubert Wilkins 1928/29, Sir Douglas Mawson 1929, and the recent French Adélie Land Expedition (1948/51). Establishment and continuous operation of two permanent sub-Antarctic stations, at Heard and Macquarie Islands (since 1947/48), have also been a major contribution to Antarctic research.

(Almost half of the wide area (2,472,000 square miles) is Australian territory. The coastal district between 80° and 75° East longitude is called MacRobertson Land. This is the place the expedition anticipates to set foot on. Sir Douglas Mawson landed here with his team in 1928. He named the land after MacPherson Robertson who had helped to finance his trip. Although the main object of this 1954 Australian expedition is finding a suitable base and the establishment of a permanent research station and thus laying the foundation for large-scale investigations in years to come, its scientific programme is of considerable extent, and

includes work in meteorology, geology, surveying, biology, and geophysics. It is obvious that both official and Ham Radio communication back to this country and with other parts of the world will supply data which should be of great interest for ionospheric research. The ten men undertaking this work on the cold continent are a literally hand-picked team of experienced explorers, most of them Antarctic or sub-Antarctic veterans.

Leader of the expedition, as well as its surveyor, is Robert Dovers; others are the French observer Georges Schwartz, technical superintendent and senior wireless operator L. E. Macey, medical officer Dr. R. O. Summers, meteorologist W. J. R. Dingle, geologist B. Sinnear, engineer John Russell, wireless operator and postmaster Bill Storer (VK1EG), carpenter W. Harvey, and cook J. G. Gleadell.

BY HANS J. ALBRECHT, VK3AHH

When the Kista Dan has arrived at the coast of the continent, the most difficult work will begin for the party—that of finding a satisfactory base. Reconnaissance of the mainland is of vital importance and will be cared for by two R.A.A.F. Auster aircraft fitted with floats and skis. The establishment of the station will be supervised by Mr. P. G. Law, Director of the Antarctic Division of the Department for External Affairs.



Region of Australian Antarctic Research. (Southern Magnetic Pole at $71^{\circ} 10' \text{S}$. and $150^{\circ} 45' \text{E}$.)

The expedition camp will consist of several huts, their construction and outfit being the result of numerous experiments by the Antarctic Division and also of long-time experiences of other explorations. Some of these huts are of a prefabricated type specially designed for this purpose. The Antarctic village to be set up in MacRobertson Land will provide the necessary accommodation for men and apparatus and is intended to be the base for investigations in the hinterland. The camp's electric power will be supplied by two diesel electric generators of 15 kva. each.

The wireless station will obviously be located in the camp. Two R.A.A.F. type AT20M transmitters constitute the main transmitting equipment. Their coverage is 2 to 20 Mc. The final p.a. contains

four 813s in parallel with a plate voltage of 1,600 volts supplied by the separate power supply using 866s. The modulator houses 813s and the output is rated at 500 to 750 watts, fed to an inverted vee antenna (70 ft. high at the apex). Two AR7s and a National X100A form the receiving set-up. The latter belonged to Sir Hubert Wilkins' expedition, which may be regarded as a good omen for successful radio communication to this country! An AT5/ARS system (powered from either batteries or AC power supply) as emergency equipment will be stored in a separate hut.

Meteorological elements to be measured are the same as at any weather station of this kind, i.e. temperature of air and ground, barometric pressure, wind, humidity, all on the ground as well as in upper regions (by radiosonde ascents), in addition to observations on clouds and snow conditions. Instruments used are principally the equivalent to those in ordinary, lower latitudes, although they are types specially designed for Antarctic use. As is usual practice, values of observations are daily sent by radio to this country for evaluation. Besides special instruments of entirely new design are to be utilised for meteorological radiation research.

The party's medical officer has at his disposal a surgery complete with a blood transfusion unit, operating and a portable X-ray equipment.

Although the main tasks of the expedition are research, investigations to add another contribution to the great mosaic work of knowledge on Antarctica, it must never be forgotten that these volunteers, these energetic men, keen to be pioneers of science, have to live for a whole year under conditions not comparable with those back home. It is for this reason that the authorities concerned did everything humanly possible to bring some civilisation to their village on Antarctic ground. Thus there are recreation quarters with a library, radiogram, chess, table tennis sets, etc. It is obvious that all huts with the exception of the stores are electrically heated.

Ham Radio may be listed as a means to keep these men in touch with the civilised world. Bill (ex-VK1BS in 1951) will operate under his Antarctic call sign VK1EG. His equipment will be a modified AT5 and a Hammerlund receiver. He intends to use c.w. and also phone, if signals are strong enough.

A considerable section of the expedition's programme is headed "field investigations." Here again special well proved equipment will be used. First, there are three tracked snow vehicles, so-called "weasels." Their excellent Antarctic performance had been demonstrated by the French Adélie Land expedition. A weasel contains special navigation instruments, an astro-compass, and a portable transceiver of type SC694C (U.S.). The frequency range is approximately 3.6 to 6 Mc. A 2222 and miniature tubes constitute the line-up. The set is powered by a pedal generator or a

vibrator unit. The antenna is a whip or a long wire.

Sledges hauled by huskies are the traditional snow vehicles used on Arctic and Antarctic expeditions, and thus similar sledges will be used by this expedition, too. They are also equipped with radio communication, being an ex-R.A.A.F. set, Gibson Girl, converted to a two-channel rig (5.4 and 5.5 Mc.) and powered by a hand-crank generator. The receiver is a MCRI covering 550 Kc. to 15 Mc. (battery). Specially designed "caravans" will be used in connection with the vessels.

While biological, geological, and geophysical research and surveying carried out by the expedition will assist the completion of an over-all scientific picture of Antarctica, meteorological observations taken should invaluablely contribute to an improvement in this country's weather forecasting. All cold air masses reaching Australia originate at the south-polar region. So far the number of weather stations between there and here has not been and cannot be sufficient for a complete knowledge of those air masses, which, however, is vital for accurate forecasts. The establishment of the new station will certainly better this position greatly, not only by adding another station, but particularly by its location very close to the origin of those cold air masses.

This article would be incomplete without a discussion of the prospects of communication with MacRobertson Land. It must, however, be said that a prediction can hardly be made because not enough practical data is available. Signals originating at or passing through Arctic and Antarctic regions can be affected by severe disturbances caused by ionospheric and magnetic storms which are more frequent in those areas of high latitudes. In fact, the two zones of extensive auroral activity are a good indication for the expansion of these disturbed regions. A type of turbulence often exists among ionospheric layers there, causing a radio wave to be reflected irregularly. This becomes evident by a "flutter" fading, a familiar sound on signals passing through these areas, e.g. short-path contacts between Australia and the eastern part of South America (LU and PY). As a more detailed discussion would be beyond the scope of this article, we can confine ourselves to stating that MacRobertson Land may be just inside or just outside the southern auroral zone. Future will show how strong signals will be and how they will sound! After all VK1EG is one of us, and thus however keen DXers in all corners of the globe may be to work that new DX country down south, we shall certainly be just a bit keener to contact Bill!

Special Features

The B.F.O. is switched according to the intermediate frequency and is very stable.

The Meter on the panel can be switched to check the current reading for each of the valves. In one position, it acts as a tuning indicator.

Construction

The front panel and the coil box are strong alloy diecastings, other units being steel or brass of heavy gauge. All metal parts are well finished and protected against rust or corrosion. Components and materials throughout are of the highest quality and the receiver is suitable for use in tropical climates.

The Sole Australian Agents are R. H. Cunningham Pty. Ltd., of 118 Wattletree Road, Armadale, S.E.3, Vic.

TRADE REVIEW

Eddystone "700" Communications Receiver

BRIEF SPECIFICATIONS

Frequency Coverage

Ten ranges as follows, selected with a low capacity rotary switch:—

Range 1—	14 Mc. to	31 Mc.
" 2—	" 3.8 "	" 14 "
" 3—	" 3.8 "	" 3.8 "
" 4—	1.5 "	" 3.8 "
" 5—	600 Kc.	1500 Kc.
" 6—	240 "	" 600 "
" 7—	92 "	" 240 "
" 8—	48 "	" 92 "
" 9—	28 "	" 48 "
" 10—	15 "	" 28 "

Valve Sequence

V1—R.F. Amplifier	6BA6	(CV454)
V2—R.F. Amplifier	6BA6	(CV454)
V3—Mixer	6BE6	(CV454)
V4—Oscillator	6AU6	(CV2524)
V5—Beat Freq. Osc.	6AU6	(CV2524)
V6—I.F. Amplifier	6BA6	(CV454)
V7—I.F. Amplifier	6BA6	(CV454)
V8—A.G.C. Amplifier	6BA6	(CV454)
V9—Det. & 1st Audio	6AT8	(CV452)
V10—Push-Pull Driver	12AU7	(CV491)
V11—Push-Pull Output	6AM5	(CV136)
V12—		
V13—A.G.C. Rec. & Mut.	6AL5	(CV140)
V14—Voltage Stabl.	VR150/30	(CV128)
V15—Power Rect.	5Z4G	(CV1863)

I.F. Stages

The two I.F. stages operate on 465 Kc. on Ranges 1, 2, 3, 4, 5, and 7, and are switched to 110 Kc. on Ranges 6, 8, 9 and 10. Four degrees of selectivity, one of which incorporates a crystal filter.

Input Impedance

Above 4 Mc.—72 ohms unbalanced. Below 4 Mc.—Equivalent to a 400 pF. capacitor in series with a 12 ohm resistor, to match into a random long wire antenna.

Output Impedance and Response

A small monitor speaker is fitted internally. On the front panel are two telephone jacks, one for the connection of an external 2.5 ohm loudspeaker, the other for telephones. Maximum output is 2.5 watts into 2.5 ohms. The response is level within 4 db from 50 to 10,000 c.p.s.

Sensitivity

For a 15 db signal-to-noise ratio and 50 milliwatts output:—

Above 100 Kc.—2 to 5 microvolts.
Below 100 Kc.—5 to 10 microvolts.

Image Discrimination

At least 25 db down at the highest frequency and considerably greater at other frequencies.

Automatic Gain Control

The A.G.C. amplifier (V8) enables an excellent characteristic to be obtained. The audio output varies by not more than 3 db for an increase of 80 db input, above 5 microvolts.

Power Supply

AC mains, 110 or 200/240 volts, 40/60 cycles. Total consumption 90 watts. Protecting fuses fitted.

Tuning Drive and Scale

The two-speed geared drive has reduction ratios of 125 to 1 and 25 to 1 operation, being smooth and positive. The 16-inch scale is calibrated in frequency on all ranges to a high degree of accuracy. At the top centre of the main dial is an auxiliary bandspread scale which gives an effective length of 160 inches per range. The dial is well illuminated by tubular lamps.

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** For use with Rola 12-0X Speaker.

Type and Mounting	Impedance—Ohms		Freq. Response		Rating Watts	Typical Application	Price
	Primary	Secondary	DB±	C.P.S.			
894-23	500	2, 3.7, 8, 12.5	2	50-10,000	5	Line to Voice Coil	16/-
900-22	2,500, 5,000	2, 3.7, 8, 12.5, 15	1	*40-15,000	15	Single 807, EL34, etc., to V.C.	57/6
896-9	8,000, 10,000	2, 3.7, 8, 12.5, 15	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to V.C.	62/6
897-9	8,000, 10,000	100, 125, 160, 250, 500	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to Line	62/6
763-9	3,000, 5,000	2, 3.7, 8, 12.5, 15	1	40-20,000	15	P.P. 2A3s, A or AB1 to V.C.	62/6
809-26	500	2, 3.7, 8, 12.5, 15	1	50-20,000	15	Line to Voice Coil	42/6
870-28	10,000	2 or 8	1	*20-20,000	**6	P.P. 6V6Gs or 807s as Triodes	57/6
871-9	10,000	2 or 8	1	*20-20,000	12	P.P. 6V6Gs or 807s as Triodes	81/-
872-9	10,000	3.7 or 15	1	*20-20,000	12	P.P. 6V6Gs or 807s as Triodes	81/-
891-22	8,000	83, 100, 125, 160, 250, 500	1	50-12,000	35	P.P. 807s, AB1 to Line	82/6
892-22	3,200	50, 62, 83, 125, 250, 500	1	50-12,000	55	P.P. 807s, AB2 to Line	97/-

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FLY TO AUSTRALIA ON 50 Mc.

VK2WH contacted VR2CB at approx. 1025 a.m. on 30th Dec. The band remained open until the early afternoon and VR2CB and VR2CG were both contacted by a number of VKs mainly in the south eastern States. In due course, VR2 was heard in VK6 and vice versa; no QSO as yet but very encouraging. VK2WH was the first DX contact made from Fiji on 6 metres.

V.H.F. CONTEST LOGS

Please send in your log for the 1953-4 Ross A. Hull V.h.f. Contest. Don't delay, do it now! Logs to be in hands of Federal Contest Committee, Box 1734, G.P.O., Sydney, not later than 24th Feb., 1954. Page 10, December issue "A.R." for rules and scoring.

NEW SOUTH WALES

This month we have much news of 80 Mc. activity, the band being open to all States, VRL and ZL. On the 30th December, at 11.30 a.m. we were QSO'd by VKs LADT, FWS, ZAZN, 1HO, and 3VB. These were the only others we did not hear of. Later up came VRRCG and he was also worked by many VKs. The following were heard most interestingly concluded, and it's going to be interesting to see who out of VKs 8BO, 4BT, 4NO and 5MI will take it away. Signals in Sydney have been heard from ZL as early as 11.30 a.m. on this season. Signals on New Year's Day were heard as early as 8.48 a.m. in Sydney, and by 9 a.m. no less than 30 different stations were working.

A visitor to Sydney, Dudley 2DQ, says that he hears Sydney stations in the winter time up at Broken Hill, but they won't have a look around the band; now chaps have a look for 2DQ on 59.45 Mc, usually around 7.30 p.m. Dudley visited many sheiks in Sydney and we hope he enjoyed his stay.

On 144 Mc. there have been many openings, but not so many taking advantage of them. 2AJZ, 2ANF and 5WH have been in contact with 3GUR in Canberra and signals both ways are heard. 3GUR is a very good station and can be heard on and off. MAX 3OT being on the ball most times. 3QW's QTH is now Homebush, hope to hear him soon. 2ABR has shifted his QTH to the top of Mt. Sutherland. All ACE has moved to Dundas, and by signal. 2ABR it is a better QTH, good luck Alf. Alan 2ACC has had many contacts with Newcastle contacts. On 2ABO tells us that there are eight stations in the area, but they are not very strong. Let me help you out. I shall

We were pleased to hear that the 104 Mc. was a very good signal. John IATO has gone walkabout up to Berrington tops what no gear Johni. 30Z and 30A have been away, hope to hear you again soon. The winners of the Fox Hunt held on 13th Dec. were 31L and 3A2Z in first place, 30A and 2WJ in second place. This event is most popular, and usually has a good turn up. We were there for the 10G and ended up at Massborough. The started at Woodville and finished up at the head of Georges River, where a picnic lunch and sat together concluded the day. On

Ham was heard to sing "give us another one do!" ZANF and Erx Griffiths were the Fox, and did a good job.

and a good job. 2AGT and 2GT were experimenting with antennas on other nights, and ended up working each other on the first night of signal that had been soaked in salt water. Signal between Newcastle and Sydney must have been good, signal reports were 84 to 5 each way. We welcome 2AID of Ennu Plains to the 144 Mc. band and wish him success; John has been worked in Sydney at 57 to 5, good work OM. 2AGT has now got his converter going and can hear EKS now! 2ADY mobile in Sydney QSOed 2ADT in Newcastle, not bad going eh!

The winner of the Scramble, held on 13rd Dec., was Cliff 2LG with 18 points, Est 2ADY/M 16, and 2HL and 2APQ (Horrie and Perce) 15. Congrats to all. There were 20 stations on and a good hour was had by all.

Tests on 144 Mc. have been carried out between VK6 and Sydney during the 6 mhz openings, but no results as yet, but it will come. 2APQ and 2KS have developed 144 Mc. duplex working and say they have it to a fine art now. They use vertical and horizontal polarisation to facilitate this. John 2ANF says that he will be on two when business permits; John is very busy.

VICTORIA

Six mx openings provide the main news, with the break-through to VK3 of special interest. First in VK3 to contact FUJ was SIM who made it with VRECH at about 11 a.m. on 31st. This was followed by a number of others long enough for a good number to participate. During the period of the popular Ross Hull V.H.f. Memorial Contest, excellent conditions were maintained and active stations were ZLZ, 3's and 4, and VK3 being contacted from VK3. It is generally agreed that conditions were as good, if not better, than any other time during the year. The 31st included a period from about 2 p.m. until late in the evening when all ZL districts came through with very good strength. VK3 was active throughout the period and stations being active at the time there.

The first X max mobile fox hunt is to be held on the evening of Wednesday, 10th February. Can you have a mobile set-up going by then? The object is to locate a target mobile station which will be touring the suburbs.

V.h.f. meetings are held on the third Wednesday of the month at the Institute rooms, 191 Queen Street; the next being on the 17th at 8 p.m. If you are active on any v.h.f. band or just interested in the v.h.f.s. you are welcome to attend.

The next v.h.f. field day will be on the 14th February, which coincides with the National Field Day—3ABA.

288 Me.: This band is becoming more popular this year and new calls will possibly be heard. Those known to have either complete gear or gear under construction include **3ED, 3OO, 3AT, 3AF, 3AG, 3AJ, 3AL, 3AM, 3AN, 3AO, 3AP, 3AQ, 3AR, 3AS, 3AT, 3AU, 3AV, 3AW, 3AX, 3AY, 3AZ, 3BA, 3BB, 3BC, 3BD, 3BE, 3BF, 3BG, 3BH, 3BI, 3BJ, 3BK, 3BL, 3BM, 3BN, 3BO, 3BP, 3BQ, 3BR, 3BS, 3BT, 3BU, 3BV, 3BW, 3BX, 3BY, 3BZ, 3CA, 3CB, 3CC, 3CD, 3CE, 3CF, 3CG, 3CH, 3CI, 3CJ, 3CK, 3CL, 3CM, 3CN, 3CO, 3CP, 3CQ, 3CR, 3CS, 3CT, 3CU, 3CV, 3CW, 3CX, 3CY, 3CZ, 3DA, 3DB, 3DC, 3DD, 3DE, 3DF, 3DG, 3DH, 3DI, 3DJ, 3DK, 3DL, 3DM, 3DN, 3DO, 3DP, 3DQ, 3DR, 3DS, 3DT, 3DU, 3DV, 3DW, 3DX, 3DY, 3DZ, 3EA, 3EB, 3EC, 3ED, 3EE, 3EF, 3EG, 3EH, 3EI, 3EJ, 3EK, 3EL, 3EM, 3EN, 3EO, 3EP, 3EQ, 3ER, 3ES, 3ET, 3EU, 3EV, 3EW, 3EX, 3EY, 3EZ, 3FA, 3FB, 3FC, 3FD, 3FE, 3FF, 3FG, 3FH, 3FI, 3FJ, 3FK, 3FL, 3FM, 3FN, 3FO, 3FP, 3FQ, 3FR, 3FS, 3FT, 3FU, 3FV, 3FW, 3FX, 3FY, 3FZ, 3GA, 3GB, 3GC, 3GD, 3GE, 3GF, 3GG, 3GH, 3GI, 3GJ, 3GK, 3GL, 3GM, 3GN, 3GO, 3GP, 3GQ, 3GR, 3GS, 3GT, 3GU, 3GV, 3GW, 3GX, 3GY, 3GZ, 3HA, 3HB, 3HC, 3HD, 3HE, 3HF, 3HG, 3HH, 3HI, 3HJ, 3HK, 3HL, 3HM, 3HN, 3HO, 3HP, 3HQ, 3HR, 3HS, 3HT, 3HU, 3HV, 3HW, 3HX, 3HY, 3HZ, 3IA, 3IB, 3IC, 3ID, 3IE, 3IF, 3IG, 3IH, 3II, 3IJ, 3IK, 3IL, 3IM, 3IN, 3IO, 3IP, 3IQ, 3IR, 3IS, 3IT, 3IU, 3IV, 3IW, 3IX, 3IY, 3IZ, 3JA, 3JB, 3JC, 3JD, 3JE, 3JF, 3JG, 3JH, 3JI, 3JJ, 3JK, 3JL, 3JM, 3JN, 3JO, 3JP, 3JQ, 3JR, 3JS, 3JT, 3JU, 3JV, 3JW, 3JX, 3JY, 3JZ, 3KA, 3KB, 3KC, 3KD, 3KE, 3KF, 3KG, 3KH, 3KI, 3KJ, 3KK, 3KL, 3KM, 3KN, 3KO, 3KP, 3KQ, 3KR, 3KS, 3KT, 3KU, 3KV, 3KW, 3KX, 3KY, 3KZ, 3LA, 3LB, 3LC, 3LD, 3LE, 3LF, 3LG, 3LH, 3LI, 3LJ, 3LK, 3LL, 3LM, 3LN, 3LO, 3LP, 3LQ, 3LR, 3LS, 3LT, 3LU, 3LV, 3LW, 3LX, 3LY, 3LZ, 3MA, 3MB, 3MC, 3MD, 3ME, 3MF, 3MG, 3MH, 3MI, 3MJ, 3MK, 3ML, 3MM, 3MN, 3MO, 3MP, 3MQ, 3MR, 3MS, 3MT, 3MU, 3MV, 3MW, 3MX, 3MY, 3MZ, 3NA, 3NB, 3NC, 3ND, 3NE, 3NF, 3NG, 3NH, 3NI, 3NJ, 3NK, 3NL, 3NM, 3NN, 3NO, 3NP, 3NQ, 3NR, 3NS, 3NT, 3NU, 3NV, 3NW, 3NX, 3NY, 3NZ, 3OA, 3OB, 3OC, 3OD, 3OE, 3OF, 3OG, 3OH, 3OI, 3OJ, 3OK, 3OL, 3OM, 3ON, 3OO, 3OP, 3OQ, 3OR, 3OS, 3OT, 3OU, 3OV, 3OW, 3OX, 3OY, 3OZ, 3PA, 3PB, 3PC, 3PD, 3PE, 3PF, 3PG, 3PH, 3PI, 3PJ, 3PK, 3PL, 3PM, 3PN, 3PO, 3PP, 3PQ, 3PR, 3PS, 3PT, 3PU, 3PV, 3PW, 3PX, 3PY, 3PZ, 3QA, 3QB, 3QC, 3QD, 3QE, 3QF, 3QG, 3QH, 3QI, 3QJ, 3QK, 3QL, 3QM, 3QN, 3QO, 3QP, 3QQ, 3QR, 3QS, 3QT, 3QU, 3QV, 3QW, 3QX, 3QY, 3QZ, 3RA, 3RB, 3RC, 3RD, 3RE, 3RF, 3RG, 3RH, 3RI, 3RJ, 3RK, 3RL, 3RM, 3RN, 3RO, 3RP, 3RQ, 3RR, 3RS, 3RT, 3RU, 3RV, 3RW, 3RX, 3RY, 3RZ, 3SA, 3SB, 3SC, 3SD, 3SE, 3SF, 3SG, 3SH, 3SI, 3SJ, 3SK, 3SL, 3SM, 3SN, 3SO, 3SP, 3SQ, 3SR, 3SS, 3ST, 3SU, 3SV, 3SW, 3SX, 3SY, 3SZ, 3TA, 3TB, 3TC, 3TD, 3TE, 3TF, 3TG, 3TH, 3TI, 3TJ, 3TK, 3TL, 3TM, 3TN, 3TO, 3TP, 3TQ, 3TR, 3TS, 3TT, 3TU, 3TV, 3TW, 3TX, 3TY, 3TZ, 3UA, 3UB, 3UC, 3UD, 3UE, 3UF, 3UG, 3UH, 3UI, 3UJ, 3UK, 3UL, 3UM, 3UN, 3UO, 3UP, 3UQ, 3UR, 3US, 3UT, 3UU, 3UV, 3UW, 3UX, 3UY, 3UZ, 3VA, 3VB, 3VC, 3VD, 3VE, 3VF, 3VG, 3VH, 3VI, 3VJ, 3VK, 3VL, 3VM, 3VN, 3VO, 3VP, 3VQ, 3VR, 3VS, 3VT, 3VU, 3VV, 3VW, 3VX, 3VY, 3VZ, 3WA, 3WB, 3WC, 3WD, 3WE, 3WF, 3WG, 3WH, 3WI, 3WJ, 3WK, 3WL, 3WM, 3WN, 3WO, 3WP, 3WQ, 3WR, 3WS, 3WT, 3WU, 3WV, 3WW, 3WX, 3WY, 3WZ, 3XA, 3XB, 3XC, 3XD, 3XE, 3XF, 3XG, 3XH, 3XI, 3XJ, 3XK, 3XL, 3XM, 3XN, 3XO, 3XP, 3XQ, 3XR, 3XS, 3XT, 3XU, 3XV, 3XW, 3XX, 3XY, 3XZ, 3YA, 3YB, 3YC, 3YD, 3YE, 3YF, 3YG, 3YH, 3YI, 3YJ, 3YK, 3YL, 3YM, 3YN, 3YO, 3YP, 3YQ, 3YR, 3YS, 3YT, 3YU, 3YV, 3YW, 3YX, 3YY, 3YZ, 3ZA, 3ZB, 3ZC, 3ZD, 3ZE, 3ZF, 3ZG, 3ZH, 3ZI, 3ZJ, 3ZK, 3ZL, 3ZM, 3ZN, 3ZO, 3ZP, 3ZQ, 3ZR, 3ZS, 3ZT, 3ZU, 3ZV, 3ZW, 3ZX, 3ZY, 3ZZ, 3AA, 3AB, 3AC, 3AD, 3AE, 3AF, 3AG, 3AH, 3AI, 3AJ, 3AK, 3AL, 3AM, 3AN, 3AO, 3AP, 3AQ, 3AR, 3AS, 3AT, 3AU, 3AV, 3AW, 3AX, 3AY, 3AZ, 3BA, 3BB, 3BC, 3BD, 3BE, 3BF, 3BG, 3BH, 3BI, 3BJ, 3BK, 3BL, 3BM, 3BN, 3BO, 3BP, 3BQ, 3BR, 3BS, 3BT, 3BU, 3BV, 3BW, 3BX, 3BY, 3BZ, 3CA, 3CB, 3CC, 3CD, 3CE, 3CF, 3CG, 3CH, 3CI, 3CJ, 3CK, 3CL, 3CM, 3CN, 3CO, 3CP, 3CQ, 3CR, 3CS, 3CT, 3CU, 3CV, 3CW, 3CX, 3CY, 3CZ, 3DA, 3DB, 3DC, 3DD, 3DE, 3DF, 3DG, 3DH, 3DI, 3DJ, 3DK, 3DL, 3DM, 3DN, 3DO, 3DP, 3DQ, 3DR, 3DS, 3DT, 3DU, 3DV, 3DW, 3DX, 3DY, 3DZ, 3EA, 3EB, 3EC, 3ED, 3EE, 3EF, 3EG, 3EH, 3EI, 3EJ, 3EK, 3EL, 3EM, 3EN, 3EO, 3EP, 3EQ, 3ER, 3ES, 3ET, 3EU, 3EV, 3EW, 3EX, 3EY, 3EZ, 3FA, 3FB, 3FC, 3FD, 3FE, 3FF, 3FG, 3FH, 3FI, 3FJ, 3FK, 3FL, 3FM, 3FN, 3FO, 3FP, 3FQ, 3FR, 3FS, 3FT, 3FU, 3FV, 3FW, 3FX, 3FY, 3FZ, 3GA, 3GB, 3GC, 3GD, 3GE, 3GF, 3GG, 3GH, 3GI, 3GJ, 3GK, 3GL, 3GM, 3GN, 3GO, 3GP, 3GQ, 3GR, 3GS, 3GT, 3GU, 3GV, 3GW, 3GX, 3GY, 3GZ, 3HA, 3HB, 3HC, 3HD, 3HE, 3HF, 3HG, 3HH, 3HI, 3HJ, 3HK, 3HL, 3HM, 3HN, 3HO, 3HP, 3HQ, 3HR, 3HS, 3HT, 3HU, 3HV, 3HW, 3HX, 3HY, 3HZ, 3IA, 3IB, 3IC, 3ID, 3IE, 3IF, 3IG, 3IH, 3II, 3IJ, 3IK, 3IL, 3IM, 3IN, 3IO, 3IP, 3IQ, 3IR, 3IS, 3IT, 3IU, 3IV, 3IW, 3IX, 3IY, 3IZ, 3JA, 3JB, 3JC, 3JD, 3JE, 3JF, 3JG, 3JH, 3JI, 3JJ, 3JK, 3JL, 3JM, 3JN, 3JO, 3JP, 3JQ, 3JR, 3JS, 3JT, 3JU, 3JV, 3JW, 3JX, 3JY, 3JZ, 3KA, 3KB, 3KC, 3KD, 3KE, 3KF, 3KG, 3KH, 3KI, 3KJ, 3KK, 3KL, 3KM, 3KN, 3KO, 3KP, 3KQ, 3KR, 3KS, 3KT, 3KU, 3KV, 3KW, 3KX, 3KY, 3KZ, 3LA, 3LB, 3LC, 3LD, 3LE, 3LF, 3LG, 3LH, 3LI, 3LJ, 3LK, 3LM, 3LN, 3LO, 3LP, 3LQ, 3LR, 3LS, 3LT,**

Phone: Feb. 12-14 and March 12-14
C.W.: Feb. 26-28 and March 26-28

Due to lack of available space for the somewhat lengthy rules of this popular Contest, readers who desire to compete are asked to contact the Secretary in each Division who will be supplied with copies from the Federal Executive. Many Australian Amateurs subscribe to "QST" and the full rules will be found in January, 1954, issue of that journal.

marine at an early date, and in this regard would like to know of any activity in the Geelong area.

SOUTH AUSTRALIA

There has been much activity on 80 Mc. during the past couple of months and the results have paid off in some very good DX with reports of 200 and 212 added to the list. The 81 Mc. band has been added to the list and it was at the same time as the 8 mc contacts. It has been suggested that the V.M.F. Contest in this band be changed to an award to the operator who has the most contacts in the band over a distance for each year or season—any other ideas please? The present form is apparently even with the easy conditions, not acceptable. The 80 Mc. band is very active and the 80 SPS—Warwick went to the trouble of building up a 288 Mc rig just to be on the band and his trophy is a double tetraode tube for v.h.f. The industry very kindly donated by Philips Industries Inc. to Grand's.

Had a ring from Tom STI, who was paying a flying visit to Adelaide, the outcome of which should be a "Coke Slicker" on a mtg coupled to a convened SAU. Murgie BEC has a 1d id. ready to fire with the necessary, and together with Harry SEW also on the way. There, should be a very good chance of running a link right along the Murray Valley. Bill SAU, at end CHFs asking for contacts chaps, so it looks like some worthwhile DX.

What a gathering of vhf addicts at a certain commercial enterprise in Angus Street! Nice work Max, and very best wishes from us all—the latest recruit, Jack JD, our worthy Federal Councillor for 1984. Clam, you will need all your quick talk now! What do you do in VKs when the taxi services in VK4 and VK3 interfere. Max?

Haven't heard a word about the Adelaide Plains and their Lmx activity. My usual sources of information, Bob SPU and Roy SBT, apparently are lying low to hatch out a few more technical tricks. What about it chaps—perhaps S76 Mc is a little more active!

Had a visit from associate Brian Jellett, who resides near Narracoorte and hopes to sit for his ticket this year; he is interested in 2 mx work besides fire control work, so the Mount Gambierites won't be so isolated after all—any news, boys? I'll be accused, of padding their! SMK, 32L, 32C, 3JO (been in VK3 and back—enough said!), 8MD and others (but not in) been active on 8 mx and very smug about

Has anyone used their 6 mx beam for 2 mx work yet—if not why not? I'll tell you later if it works, because I have just repaired mine after the storm!—SKU.

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FEDERAL

RADIO AMATEUR CALL SIGN BOOK

Work has progressed very satisfactorily with the production of the Australian Radio Amateur Call Book and it is hoped that this will be available earlier than the target date in April. Miss Rousseau, "A.R." Advertising Agent, has reported a most successful trip to Sydney after advertising support and it is currently estimated that more advertising will be available than was first feared necessary for a publication of this nature. This, of course, is all to the good and should assure its success.

The front cover blocks are in the course of preparation for the production of a multi-coloured cover of attractive design. This will in all probability appear as an advertising reproduction in "A.R." for March. Don't miss out on a copy of this valuable publication—place an order with your Divisional Secretary NOW.

And Remember! If you have any doubts as to the accuracy of your address on the files of the Postmaster-General's Department let us have a correction without delay. If you change your QTH between now and late March, let us know so that the very latest and up-to-date call book may be the result of our efforts. Address all correspondence relating to the call book to: G. M. Hull, Federal Secretary, Box 2611W, G.P.O., Melbourne, C.I.

PLAN TO EXPAND FEDERAL EXECUTIVE

Since the war the Wireless Institute of Australia has grown in every State and the Divisions have found it necessary to afford a larger membership on Councils in order to cope with the extra administrative work involved by the expansion of activities of the Institute.

During this period of growth the Federal Executive has remained constituted with five voting members who have mostly had to also accept the responsibility of running the Institute in the Federal sphere.

Although under its Constitution the Federal Executive may co-opt any number of people to undertake various tasks, these people have no vote on the Executive and therefore virtually no say in what the Executive does.

To afford a more efficient Executive body to deal with the ever increasing tasks that come before it, it is proposed to make an early move to amend the Federal Constitution to provide for the expansion of voting members on the Executive.

NATIONAL FIELD DAY CONTEST

ALL BANDS ON SUNDAY,
14th FEBRUARY, 1954

See "A.R." page 10 of the January issue for details. Write today to the Wireless Inspector for your State for your PORTABLE FIRM.

Fixed or Home Stations, do not forget there is a section for you, too. Certificates will be awarded to the top scorers in the various sections in each State.

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

The results of 8th All European DX Contest 1952, started by the Danish Radio Society as part of their silver jubilee celebrations, are now to hand. It is indicated that this Contest has now been abandoned. The winner for Australia is our old friend Fred Haas, VK5FII, with the fine score of 4328 points. Then follow VK6CW 1318, VK3EK 432, while a check log was received from VK3RX. The aforementioned scores are in the c.w. section. No logs were received from Australia in the phone section.

New rules have been issued by the E.D.R. for their "OZ-CCA" diploma. The old rules proved too difficult for non-Scandinavian countries to comply with and many modifications have now been introduced to make the award easier of attainment. Information is available from this Bureau.

A fine call book has been issued by the J.A.R.L. Listings are most comprehensive giving the call sign, name, address, bands used, types of emission used, date licence first issued, occupation and date of birth of the licensee, and telephone number. Only thing that appears to be missing is the size scandals worn by the

holder. Listings are given both in Japanese and English except for Occupation which is stated in Japanese only. Miscellaneous general radio information is included in the book.

Quite a few Hams were included among the 300 people who gathered at 3 North Wharf on 10th January to witness the departure of the Kiata Dana for Antarctica, and to say au revoir and bon voyage to Bill Storer, VK1EG; Len Macey, George Delahoy, VK1DY; and John Gore, VK1GJ. Seen among the crowd were Hams VK3AHH, Brian ex-VK1RA, Eric ex-VK1EM, Vic VK2II, Dick VK3XD and youth trainees.

Fred Cropley, ZL3AHH, complete with XVI and seven, repeat seven, sons, recently arrived in Melbourne to take on residence in this premier city. A wise choice Fred and welcome to you all.

Ken Smithurst, well known as MP4AD a few years back, is now operating as DL1UY and Cpl. K. Smithurst, O.M.C. Flight, 1 Group (Unit) Signals, R.A.F. Sander, Ind T.A.P. S.A.O.B. St. Germany, or via R.S.G.B. With an address like that, who would blame Hams for cheering the alternative.

Dolf PA0RFL (ex-PK3ZZ) has enlisted the aid of his old friend, Col. Wright, VK2LZ, in an endeavour to obtain outstanding VK QSLs for his PK3ZZ operations. Dolf would be happy to receive a card from the following VK stations: 3VA, 3ADZ, 3J3, 3GU, 3EL, 3AIPA, 3WY and 4BZ.

Dolf is a 4BZ and a 4BZ attaché with Australia, being a member of the Dutch 18 Squadron during the War. This Squadron, gone a period was domiciled in Australia and VK. Dolf also married a VK4 girl and one of their two children was born in VK. Any of those above stations can send their cards to VK2LZ, 3 Knight Street, Launceston, Tas. and Col. will see they reach Dolf safely.

NEW SOUTH WALES

The last meeting of this Division was the Christmas Social which was held at the usual meeting place and was attended by approximately 70 members. About the only business that was discussed was preliminary discussions on the Constitution.

Coloured slides were shown by Ken 3AXZ and the Secretary Dud ZLQ covering a variety of slides from N.S.W. and from other States. Last year's Zone Convention at Urunga, Waragamba Dam, and Southern Tablelands of VK2. Last, but not least, in the boys' estimation, Ken's professional models aroused wide interest and requests for telephone numbers. Supper was served and everyone had an enjoyable evening.

The Division had a visit from a Magazine Committee member in Ron 3RN. A few discussions were held at the Pharmacy and also in the electrical department of a well known furniture store in the city.

WESTERN FRONTS

All's quiet on the Western Front is an old saying, but it is still true for Ham Radio hereabouts. EDP has put in an appearance from Annandale on 21. Mc, but 2A22 appears have given it away for wearing a check shirt and square dangle. 3AMV still plodding around 20 mhz, but 2A22 controlled now flag 3EP paid a visit to a number of us around here. I see there is to be a newcomers from Concord Road, Concord (no call as yet). O.T. portable until after many years. Back on also after 10 months silence is 2A4H of Strathfield, good to hear you Harold.

Paid a visit to Bob 2A2F with Alan 2A0I of Concord and we were much impressed with the size of the shack, enough room to swing two cats, and completely shielded (probably C.T.V.). A surprise in PA0A5B on 7 Mc. caused a sensation, but it turned out he was in Gifford using an old call as a portable but his VK call arrived. 2A2XZ liberating and 2A2F preparing to shift QTH and indulge in some A.E. were also in the 2A2XZ number wrong in the December issue, it is LA 824 (days only). Well hoping to get some dope, T2.

HUNTER BRANCH

The main event for the month was our Hunter Branch Christmas Social, held at Henderson Park M. Adamstown, and attended by 135 stars. XV1A and 2A22 were present. Attendance were the Divisional President and his wife, Mr and Mrs. Jim Corbin, who made the trip from Sydney to be present also Doug 2A5A from Wyong, "Major" 2HU from Gosford, Bill 2AEX from Three, and Jeff 2VU and Alec 2122 from Singleton.



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SOUTH WESTERN ZONE

Zone activities were at a low level during the holiday period although the zone book-up is still going at 1000 hours every Sunday on 3400 Kc. How about some of you Geelong chaps joining us, you are still in this zone? The Geelong Club's tx was heard on the 23 Mc. band, being operated portable at the Yon-Yang with a good strength signal. 3RG has issued in style its operating from Pt. Lonsdale. Bill 3AMR is still missing, having been lost around Ballarat some weeks ago. Bert 3BI still manages to find a few minutes to put in an appearance. 3ADN has not been heard for some time, but is putting his spare time on bush fire net.

3BV too busy sailing boats during the summer. 3QZ chasing 58s and bits and pieces, looks like 144 Mc. again, what about it 3ARK and 3AGD. Bill 3WT and Ed 3AKZ are having a spell in the hospital—don't stay too long, hope to hear you both soon. 3BU has his antenna OK now thanks to 3ALG and 3AWZ.

A discussion on the proposed cutting up of the zones using the regional boundaries has not met with approval in this zone. It would mean this zone would be cut into at least three parts, leaving three or four active hams in at least two of the new zones. It has been suggested that a piece be cut from the eastern end of this zone only, lots more later on this matter.

FAR NORTH WESTERN ZONE

On Wednesday, 8th January, the Annual Meeting of the Far North Western Zone was held at the home of 3GZ. Members present included 3TL, 3GZ, 3ATL, 3AGD, 3BN, 3APF, Associate Fred Uchman and visitor Evan 3AAP. Apologies were received from Frank 3VC who was unable to make the trip from Cuyam, Alan and George from Mildura D.C.A. Officers elected for the ensuing year were President 3GZ, Secretary 3TL, Treasurer 3BF. The Sunday WLA book-up will be taken by 3APF, 3ATL and 3TL. Weekly zone book-up will take place every Wednesday night on 7 Mc. band at 7 p.m.

Chas 3TL, who with Fred attended the Benalla Convention, gave us a very comprehensive report on the Convention and several items on the agenda paper were discussed fully. The meeting concluded with supper provided by 3MF's KYL. Bill and Charlie brought some two not equipment, which was inspected with great interest by the members. A practical

demonstration was given by Chas and Bill to prove that the gear worked. Chas operated his tx at his home and it was received on 3BU's rx at 3GZ's shack. Quite a deal of discussion went on about the merits of various antennae for 2 m. Bill 3ATL has a deal with the gang at Benmark in S.A., and has hopes of bridging the 90 mile gap between these centres. We hope to have more news of the 2 m. activity next month.

GEELONG AMATEUR RADIO CLUB

The month of December was an active one outdoors. On the 2nd a tx hunt was the order of things, the operators being 3AKK and 3APK. The location chosen was in the Barrabool Hills about 10 miles out. Results—1st, G. Wood and 3ARK; 2nd, 3AKH; 3rd, J. Beckingham and 3WT; 4th, C. Adams, W. Zimmer, M. Stock and V. Clarke failed to locate before closing time.

On the 13th (Sunday), V. Clarke and 3AWZ chose the site for another hunt, the location being on the Drysdale-Queenscliff Road about 3 miles from Drysdale. The only member to find the tx was 3AKH. Thanks to envelopes and directions, all parties met at Queenscliff for lunch and later another hunt taken out by V. Clarke and 3AWZ was located by all present, the first three being 3AKH, 3ALG and 3BU.

The Christmas Party was held on the 16th. Several films were shown including one loaned for the occasion by R. Hall, of the Moorabbin Club, which he had taken at several tx hunts.

3WT, 3AKE and 3BU are on the sick list at present, but latest information is that all are on the improve and we hope to enjoy their company shortly. 3AKH is on holidays and is operating portable in South Gippsland and has maintained a regular schedule with the lads at home.

— . . . —

QUEENSLAND

December meeting saw a better than average attendance, though we sure could do with your attendance. Hope one resolution you make will be to attend your meetings more regularly in 1954. Two very interesting lectures were given, one by John 3AT on "Balanced Bridge V. WLA" and the other by Tom Athey on "Matching Transmission Lines"—both ably presented and enlightening.

The Dutch auction wasn't so successful as the last, maybe being so close to Xmas no one

having any money. The hearing aids were halloped for and among the lucky ones were 4PT, 4TP and 4WP. John 4PT has converted his to a pocket tx for b.c. band and I believe with very good results, though he isn't having much luck with the crystal insert as a mike, looks as if you are stuck with the 3 inch speaker John.

Arthur 4AW filed the breach and organized the Xmas Doc, which was well attended by a lot of our zone chaps. Quite a few who we haven't seen in many months. With the goodies, the amber liquid, and the jokes—blue and otherwise—each and everyone enjoyed the night. Thanks for the effort, Arthur, may your beard grow long.

Frank 4FN (ex-4FN) has been enjoying a stay in Brisbane and as usual getting behind this Division with his usual activity. Frank organized a couple of broadcasts from WI, also prepared the editorial for "Q & A" and by a large worked like a tiger. We certainly lost one of the willing horses when Frank left for New Guinea. We haven't been able to find a permanent home for 4WI since. All this and tripping to Lismore kept him busy. Hope to see you in a couple of years time Frank and I'm sure we won't give you so much to do next time.

Herb 4KH is in hospital at the time of writing, but hope your stay is short. Herb 4FP has gone for a tour of ZL land. Jim 4OB is taking his National Service in Townsville in Air Force. Listening around the bands I think most of the others must be taking holidays also, as there is very little activity. A word of warning: don't mention Melbourne weather to Keith 4KS as I believe, I didn't treat him very well during his stay there. I told you to take your long underwear Keith, and a hot water bottle.

Believe Bill 4WF is doing some conversions to a 3C38, Leon 4FW is having trouble with his, wants to know how to get rid of a high noise level which has recently developed. Maybe you two should get your heads together. Any other suggestions from you 3C38 boys for Leon. Jack 4B has been enjoying his break holiday, has put himself up a new tower for his beam, must be good to be so energetic Jack. Also heard Jack working in couple of bands. Del 4RJ and Chlin 4SD seem to keep the c.w. end of the band alive from Brisbane though Bob 4RW, of Townsville, and Gus 4GZ, of Charlton, seem to cover the most QRM there on 20 m. Clive 4CC, when not looking for flying

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savers, seems to find time to play with n.h.f.m. and all the other combinations.

Harry 40X (Mackay) put a very nice signal in Brisbane during Xmas. I believe he is the most active there with an occasional burst from 48Q.

The Rocky boys came through one evening on 21 and 22 and 23, in a round table conference. Bill 4WD, the Warwick, Al Bob 4NG was there, after chasing home the bacon, and Eric 4EC keeping an eye on Bob. I gathered the boys had a very good time. For amusement, they start a QSO on 80 and generally wind up through all the bands to 2 max. I was a bit worried about the 21 and 22, but Aussie 4TN, Don 4GP and yours truly holding the line on the Brisbane end, would like to have been there.

Frank 4ZM is enjoying his holidays on the North Coast, looks like he has deserted the c.w., as I heard him on phone with a clamper tube from John 4C on 21. I was a bit worried about when the DX is there, so it's the only time I hear him here. Aussie 4TN has been doing some construction with a portable rig, and when not trying it out is hunting for the DX on all bands, especially 21 Mc.

One chap by the time this is read, the nominations for the Council are due in, so if you have aspirations of becoming a Council member, or you are not satisfied with the workings of the present Council, you had better get your nomination as new blood on Council in always welcome, plus the fact it gives one and all the opportunity to have a say in the running of business that is handled by the Council, and a clearer picture of the Institute itself.

There is a meeting of the Council and a general meeting for the election of officers. Both functions worth remembering.

April will be the month for the VK4 Institute to start work on the new shield, start coking up the rig as the Contest is going to be tough this year, as there is quite a lot seen to get their name in.

So for now better conditions for 1964 and more support to the Institute.

.....

SOUTH AUSTRALIA

The VKS monthly general meeting for December took the form of a Xmas get-together at which approximately 120 members and several guests enjoyed a festive evening. The night together to celebrate the coming festive season. The word oldtimers only means oldtimers in Ham Radio and does not mean to infer that they are old. All were young, and many with white heads and carried gasped walking sticks. Among the oldtimers were Merv, Brown (ex-4X), and the late VK3 President, (ex-4X) GIKI, Cliff Churchward (ex-SBA and incidentally 10 years off), Nobby Prince (4WK), Gordon (4J), and the late VK3 President, (ex-4X) Herby Zitz. Apologies were received from Ken Mine, Ivor Thomas (4IT and incidentally one of the best VK3 operators), and Lance Jones (ex-SBQ) - all of whom were absent from the State on business. John Clifton (4H) who is one of the leading DX men in the VKS although a "shut-in" came along to the meeting and renewed many acquaintances made on the air, and our thanks are due to Ken 5KC for making it all possible. John was accompanied by John up and delivering him safe and sound to the meeting, later returning him to his home. The evening was a most enjoyable and memorable night in such congenial company. Nice work Ken, little actions like that are the backbone of the VKS and we are sure you will still be shining when most of us are forgotten.

From my past experience, Council decided that the entertainment side of the evening should follow the lines of an ordinary general meeting and Mr. Keith Manning, a member of the Adelaide Club, came along and gave us an excellent illustrated-in-colour talk on his recent trip to Ceylon. The reaction of all present to this talk was particularly good. Doc SMD, in his proposal of the vote of thanks, expressed the view of all present when he said that we were all very much interested in going up, because our trip to Ceylon had come to an end much too soon. The applause that greeted the vote of thanks was clearly indicated to Mr. Manning just how well he had contributed to the success of the meeting.

At this juncture the seats were all pushed back and the tables were rearranged and moved under the tables, to the intense satisfaction of the President. Everybody appeared to have a good time and the evening was a success. The Xmas meeting has come to stay, although it is possible that there are one or two members who do not prefer the style of Xmas and its associated entertainment. The Council can only hope to please the majority and I think it most will agree that the 1963 Xmas get-together was a success.

The amount of food brought along by the members was as last year colossal, and the

remains of the feast was taken along to one of the orphan homes in the vicinity by Gordon 5XU and I close the description of the night with the fact that the Xmas cake, complete with cream, apricot, and a miniature Father Xmas (labelled Pantry) was eaten by the Division by Jack 4JZ and members are all appreciative of this annual gesture on his part.

The Xmas party at the Xmas Club seems to suggest that the feud between Doc SMD and myself is all a lot of boloney, and I suspect it may have been a misunderstanding but arose from a misunderstanding at a little social evening we once attended. During supper, Doc and I were quite enjoying our selves at the table eating the remnants of little roasted birds called quail. May, that's his wife, and I, sure were making those birds disappear, and several May did get angry. Later on in the evening it came my turn to add to the entertainment, and without stopping to think I said that the quail little ballad, "How happy are the birds in May." Need I say more? Doc has never forgiven me, and if you want further proof take the way I am treated on the few occasions that I visit the QTH of Doc. The first thing that he does when I enter the drawing room is to menace me to one of the hard wooden chairs. I sit down, and he sits at me whilst I start picking a bag of eucalyptus instead of playing bridge with the rest. When supper is over, he says to me, "You're a good Barbler sugar cake, you said it, I don't. All I get is a plate of rock buns and a small amount of eucalyptus, and I am not a member of the Barbler sugar cake. When we leave the precincts I am accompanied to the gate by Doc, who says to me, "You're a good Barbler sugar cake, and tell me in a condescending voice to try and keep on the straight road up to the bus or else I'll be in trouble for the next four days. You think I'll that that there food, and all over a few little birds!

UPPER MURRAY AREAS

The December meeting of the Upper Murray gang was held at the QTH of Tom 5TL and there was a distinct experiential flavour to the gathering. The fact that all present brought along some experimental gear for exhibition. If it had been held down here at the VKS it would have been a success. Buy and sell night, but as it is the practice in the Upper Murray areas to give away instead of sell, it was a success. The night was a success, and I am tired out of order. Do I see a crack in that remark? Maybe it is my suspicious nature that makes me think that. I am a bit of a multi-band tank but not, Huggle brought his dip meter to ensure that Fred was OK. Tom produced some 144 Mc gear, which when he was asked to give it to me, I said, "No pink, associate member Wolfgang brought along a small rx that he had made up, and Huggle said that he had made up a small rx. There were several absentees, Harry being caught up with his vocation, Alex reported sick, and the night was a success. The night was a success, and the worst is still! A good time was had by all, and the usual Xmas greetings exchanged.

5TL is building a "City Slicker" for 144 Mc, and has high hopes of something really promising. I am a bit of a multi-band tank but not, Huggle brought his dip meter to ensure that Fred was OK. Tom produced some 144 Mc gear, which when he was asked to give it to me, I said, "No pink, associate member Wolfgang brought along a small rx that he had made up, and Huggle said that he had made up a small rx. There were several absentees, Harry being caught up with his vocation, Alex reported sick, and the night was a success. The night was a success, and the worst is still! A good time was had by all, and the usual Xmas greetings exchanged.

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garden. Finally dismounting he again rushed and started kicking the rubbish around and soon had the floor wet and tried to make his feelings when a big bulky brute came out of the front door of the house and said, "What are you doing? It took me fifteen minutes to get that ---- rubbish to start to burn!" The said Harry retired, extremely mortified and lost several points for being in late at the finish. I have purposely left out the name of the man who arrived at the finish, but I am sure, he was a barrister him. Kindhearted Pantry they call me, among other things!

The said Harry went up the aisle with his daughter this month and said "I do" in a loud and well modulated voice. Present at the Church were Doc SMD, Ross 5LW, Gordon 4KU, and the said Harry. My reason for mentioning these gentlemen is because when the bride's motor arrived it was a car, but when it left it did not! The above mentioned gentlemen including the bride's father were taken to the vestry and mingled - interposed - interposed, anyway they were asked some very pointed questions. It is expected that an important statement will be released at any time now, but I cannot say as yet. The said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands.

The Woollers Radio Club has by now received the results of the recent election. I should be very pleased with it. It was certainly a work of art and the full credit must go to the club. The results of the election are as follows: The charming daughter of Reg 5RH, the general secretary of the VKS Division. It was displayed at the December meeting for all to see and received its full share of praise. It was a car, but when it left it did not! The above mentioned gentlemen including the bride's father were taken to the vestry and mingled - interposed - interposed, anyway they were asked some very pointed questions. It is expected that an important statement will be released at any time now, but I cannot say as yet. The said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands. After the work of the day is completed, the said Harry is making it a little difficult to type with these hands.

At Xmas time, previous to this year, I have always watched my daughter and my wife receive their presents. I am a bit of a multi-band tank but not, Huggle brought his dip meter to ensure that Fred was OK. Tom produced some 144 Mc gear, which when he was asked to give it to me, I said, "No pink, associate member Wolfgang brought along a small rx that he had made up, and Huggle said that he had made up a small rx. There were several absentees, Harry being caught up with his vocation, Alex reported sick, and the night was a success. The night was a success, and the worst is still! A good time was had by all, and the usual Xmas greetings exchanged.

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Joe SJO on portable but without success. SJO is at present on holidays but has found time to jot down his ideas for the contest. He intends to install a motor on the beam which should make operating much easier. SJA has been progressing steadily with his tape recorder but most of John's spare time has been given to the R.F.S. base station. SFD has been heard on 40 mHz several times, so that is a good sign, but he has not yet been heard on 30 mHz. Signing a garage door that will open just before the car hits it; very funny, very funny. SMS is still very active on 20 mHz and has been heard on 30 mHz. Stuart has had quite a few visitors over the holiday period, they did not have any trouble locating his QTH as his beam and tower is quite a landmark in Mount Gambier.

SCJ has been very active apart from the usual sheds, but Col has been meeting up with a number of visiting Hams from all States. Greetings reciprocated Col.

Among the visiting celebrities to the Mount over the holiday period were Ivan SQV and a friend, Noel SZO and his XYL, and Joe SJO and his son Ray, together with a friend named Doug. Doug was portable on his way to VK3 and proved a good ambassador for his Division by calling in on every Ham available on the trip. Ivan, Col and Joe were all very keen to contact him on his way from the Mount to Melbourne, but were prevented by noise and conditions. It has been suggested that possibly Doug was grabbed by a passing motorist, but there is no confirmation of this as yet, although if they were travelling in his son's station wagon, it is very likely that something would have happened. You ought to see it, it has all mod. cons., but running maids and everything. What an 11 saying?

A. and C. to report for the Xmas party was Gordon XJU (ex-SJU) and his XYL. They renewed a number of friendships made many years ago, and it was a very pleasant Warwick SPC and discussed with relish as to how they used to take on any Government department for an argument, at the drop of a hat. Gordon and his charming XYL, who was a day older than when they left VK3, in fact when I entered the lounge room in my wheelchair, they both seemed to be in the best of health. I formed the impression that they had possibly discovered the secret of eternal youth. We spent the night of the party in the lounge room, and the other as to the wonderful qualities possessed by our respective large families. We finished about equal on points, although I felt that I had a slight edge. The prize was handed for the grandfather stage should have been the day!

Another welcome visitor to VK3, and also the D.B.S., was John SABI who paid several visits to the local boys and made a number of new friends as well. His main reason for the trip was to "check up" on the boys, and from what I am led to believe, it is real serious. Anyway John, you could do worse than settle in for a permanent stay at the Commonwealth. VK3 and VK4 scribes please note!

By the time that these notes are being read, nominations for the 1954 Council will be the order of the day, should any that most members in VK3 realise that being a Council member is not a job to seek, this being amply illustrated by the fact that by lack of nominations, and I also think that members are not aware of an efficient Council the VK3 Division would soon fade out. Therefore I wish to stress to you all that some new blood is needed in the blood, will be an asset in the coming year. Any member of the VK3 Council will be more than pleased to accept a new blood. It is a common member hesitates to nominate for the Council because he feels that he might be hurting somebody's feelings. Then I say forget it, it will be a pain in the neck. This is the same man who has an efficiency expert to hop in and run the VK3 Division according to the lines advocated sometimes on the radio and sometimes in the gutter after the general meeting, but the main thing is to hop in and get yourself a headache and then stand aside in an elaborate pose to regret that I announce that there is no chance of tipping me off the Council because under the rules, the retiring President does not face a poll. But I am a couple of DOODS POODS.

"They all laughed when I sat down to play!" A couple of months ago the President of the VK3 Division, amid terrific insults and mud slung in every direction, he was in a position to experiment on 288 Mc. and warned all and sundry to be prepared for action. The ninth and thirteenth of December were the dates of announcement came from the youngest associate member to the veteran in v.h.f. technique, and through all, smiling on his face, he carried on his features. The indomitable President carried on. If you care to turn to the v.h.f. notes for this month and look under the VK3 notes, you will find that he corresponded to me, and I say may has not forgotten his duty, you will see that the winner of the 1953 V.H.F. Intrastate Contest is none other than W. W. Parsons, NPL.

Shier modestly stops me from telling the whole story of the Contest, but this I will say, I scored four times more points than any other contestant, and as the reigning v.h.f. champion for the coming year, I salute you. Pardon my title! but my "littering mechanism" working overtime I desire to thank you, Col, for planting the idea of the v.h.f. in my mind, Charlie SON for presenting me with the beam, and Doug for the conditions for the contest. tx, and HEX SKY for so manfully coming back to my hesitant and feeble plea for a contact on 288 Mc. and for the help and support toward winning the Contest! As I said before, "They all laughed, etc., etc." You beautiful!

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WESTERN AUSTRALIA

The Christmas and New Year has come and gone just a brief interval in the "Christmas time." If it is not a copyright expression — Ed. I to the interested Amateur it is a period given over to family affairs and as soon as stability is established, the game goes. Festive times do not produce more Radio Hams, or see the existing ones seek new pastures. All look forward to more stable conditions for say DX, or to construct that new tx, or rebuild that double conversion super; each to his own. As the conditions for the contest of the older Hams that the official designation was changed from Experimenter to Amateur for a purpose. Was it because so many of us were using the telescopic antenna? Or was it out even a thought of the why and how of the equipment being constructed? Why leave it entirely to the imagination of the contest judges? The structure to the Amateur book on radio to do all the experimenting for you? Be an experimenter, and you will find the conditions for the progress of radio. Every little helps and let us have some original articles in our magazine. In the last few issues a medal should go to VK3EC, not only for research, but for making the results available to inspire others to go thou and do likewise.

Events since the last publication consisted of the Annual Picnic held at the "Green Goddess," which turned out a great success. The children were well catered for, and the Social Committee, with GOR at the helm, roared, stood and stoked up the fire and even put on a Punch and Judy show. Thanks are due to GOR and the Committee who took their job and pulled it off to the help of Old and Young members turned up.

The last meeting for the year was in the nature of a social evening and whereas at ordinary meetings the main objective was for about ten minutes, on this occasion it lasted practically the whole evening; so did the refreshments. Thanks to the judgment of the commissariat department. A pleasant idea was to invite all our special friends, all those outsiders who gave us lectures during the year, and about ten or twelve more. The guests are pleased to record did turn up and received a cordial welcome. Evidence of the unity existing in VK3 need not be looked for any further than the retention of the R.D. Trophy. Team work was essential to do that.

— . . . —

TASMANIA

As this month has been one mad rush to complete the Institute Exhibit at the Sesqui-centenary Science Exhibition, these notes are rather brief and for this I apologise. The January meeting was a very busy one, and the January and was well attended considering the holiday period. There was little business to attend to, the items for the 1954 Advisory Committee and the arranging of a roster of operators for VKTWT at the Exhibition. After the meeting there was a presentation of the trophy for the progress being made on the VKTWT and, further work was done so that the exhibit would be a credit to the Institute. On the following day, TBJ and TAL retired early in the morning to work on the VKTWT tx—these two members doing excellent work to get the final test of the DOODS POODS. Exhibition opened.

The Exhibition was opened at 3 p.m. on 7th January by His Excellency the Governor, who inspected the station and showed great interest in Amateur Radio. Although conditions have been rather poor so far—20 mHz being the only band—there are a few sales in the Hydro Electric Commission staff demonstrating with arcs and sparks several feet long. The receiving centre was set up several miles from the base of the station, and the signal was the output from the rx relayed to the hall via a 3 mHz link, the rx may also be tuned from the hall by means of the same link. This com-

pletely overcame the noise problem, and BUI has been doing good work by being in attendance at the rx all the time and keeping the show going.

Since the new TWT tx was not quite ready for operation, TTY very nobly loaned his rig so that the station could go on the air, and a very nice rig too—Bill—complete with foot control and all.

Since the exhibition has attracted large crowds so far, especially when the band is open and contacts are coming thick and fast. The show I think can be considered to be a complete success and will do much to convert Amateur Radio and the Institute. This success is entirely due to all those who gave their time and to those who could not spare the time but made donations in other ways.

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OFFER wanted, complete 3 el. rotary beam (14 Mc.) including slayn motors, indicator, beam motor, transformer, 40 ft. steel tower. V.C.T. Valve and Circuit Tester. £20. Heavily chromed bug key, auto dots and dashes, £5. Xtal 50.930 Mc., 30/- R. Guthrielet, Box 73, Port Pirie, South Australia.

SELL—Ham Radio parts: Power Supplies 200 Ma. mains and m/g; Leach Relays, and others; Meters, Condensers etc.; 5" C.R.O. parts. Must sell, best offer part or lot. Apply 13 Rutland Ave., Brighton, South Aust.

SELL—4 G.E. Tuning Units (£8); 1 R.C.A. 100 Kc. Crystal (£2); 10 Xtals various frequencies (£5); 1 BC733D Receiver less crystals (£4); 1 Command Receiver 6-9 Mc. (£4/10/-); 1 Command Xmitter, 5.3-7 Mc. (£4); 1 TA12D Xmitter (£10); 1 ABC converted to AC with 8 inch speaker and power supply (£20); 1 AT5 Aerial Coupler (£3); all apparatus complete with tubes; 1 Command Xmitter Aerial Relay Unit (£1). £60 the lot (will separate). J. W. Nairn, 22 McLean St., Morwell, Vic.

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Electric Gramo Unit, 78 r.p.m. 230 volt synchronous Turntable with High Fidelity Magnetic Pick-up. Automatic Stop.

Cut to only 84/-

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Bakelite Mantel Cabinets—

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FAMOUS MAKE

High Fidelity well known English make Twin-Cone 12 inch diameter 15 watt Speaker, £17/17/-.

290 LONSDALE STREET, MELBOURNE

FB 3711

Announcing



The EDDYSTONE

"750" COMMUNICATIONS RECEIVER



A FINE BRITISH MADE COMMUNICATIONS RECEIVER OF ADVANCED DESIGN AND FIRST-CLASS CONSTRUCTION

The new Eddystone "750" Receiver employs the latest technique in double superheterodyne circuits and combines high selectivity and sensitivity with excellent signal-to-noise ratio.

CIRCUIT

The receiver is an eleven valve double superheterodyne including one R.F. Amplifying Stage.

BANDSPREAD

The ingenious mechanical bandspread mechanism gives an almost linear scale equivalent to about 32 feet on each tuning range. The figures that follow apply to bandspread coverage on the bands allocated to Amateurs at the Atlantic City Conference. Variation in the width of each Amateur band necessarily affects the degree of coverage and against each band we have shown the number of vernier divisions required to tune over the corresponding number of kilocycles for each separate band width.

Band Width	Tuning Coverage on Vernier Scale	Vernier Divisions of Bandspread	Kilocycles in Band
29.7 Mc. to 28 Mc.	34.375"	208	1700
21.45 Mc. to 21 Mc.	7.5"	45.5	450
14.35 Mc. to 14 Mc.	6.45"	39	350
7.3 Mc. to 7 Mc.	15"	91	300
4.0 Mc. to 3.5 Mc.	61"	364	500
2.0 Mc. to 1.8 Mc.	30"	182	200

TUNING RANGE

The receiver is provided with four wave bands, the first three overlapping and covering from 32 to 1.7 Mc. and the fourth covering 1465 to 480 Kc. Each band is selected by a low capacity switch. The actual ranges are:

- (1) 32 Mc. to 12 Mc.
- (2) 12 Mc. to 4.5 Mc.
- (3) 4.5 Mc. to 1.7 Mc.
- (4) 1465 Kc. to 480 Kc.

"S" METER

A socket is fitted at the rear of the receiver, into which an external "S" Meter Unit—Cat. No. 669—can be connected.

INTERMEDIATE FREQUENCY STAGES

The first I.F. is 1620 Kc. and the second 85 Kc. This combination results in high adjacent channel selectivity and negligible image interference. The transformers are robustly constructed and permeability tuned.

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